PUBLIC HEALTH REPORTS

VOL. 53 AUGUST 12, 1938 NO. 32

REPORT ON MARKET-MILK SUPPLIES OF CERTAIN URBAN COMMUNITIES

Compliance of the Market-Milk Supplies of Certain Urban Communities With the Grade A Pasteurized and Grade A Raw Milk Requirements of the Public Health Service Milk Ordinance and Code (as Shown by Compliance (Not Safety) Ratings of 90 Percent or More Reported by the State Milk-Sanitation Authorities During the Period July 1, 1936, to June 30, 1938)

The accompanying list gives the tenth semiannual revision of the list of certain urban communities in which the pasteurized market milk is both produced and pasteurized in accordance with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code, and in which the raw market milk sold to the final consumer is produced in accordance with the Grade A raw milk requirements of said ordinance and code, as shown by ratings of 90 percent or more reported by State milk-sanitation authorities.

These ratings are not a complete measure of safety, but represent the degree of compliance with the Grade A requirements of the Public Health Service Milk Ordinance and Code. Safety estimates should also take into account the percentage of milk pasteurized, which is given in the following tables.

The primary reason for publishing such lists from time to time is to encourage the communities of the United States to attain and maintain a high level of excellence in the public health control of milk supplies.

It is emphasized that the Public Health Service does not intend to imply that only those communities on the list are provided with high-grade milk supplies. Some communities which have high-grade milk supplies are not included because arrangements have not been made for the determination of their ratings by the State milk-sanitation authority. In other cases the ratings which have been determined are now more than 2 years old and have therefore lapsed. In still other communities with high-grade milk supplies there seems, in the opinion of the community, to be no local necessity nor desire for rating or inclusion in the list, nor any reasonable local benefit to be derived therefrom.

90918°—38——1

The rules under which a community is included in this list are as follows:

(1) All ratings must have been determined by the State milk-sanitation authority in accordance with the Public Health Service rating method, based upon the Grade A pasteurized milk and the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code.

(2) No community will be included in the list unless both its pasteurized milk and its raw milk ratings are 90 percent or more, provided that communities in which only raw milk is sold will be included if the raw milk ratings are 90 percent or more.

(3) The rating used will be the latest rating submitted to the Public Health Service, but no rating will be used which is more than 2 years old.

(4) The Public Health Service will make occasional surprise check surveys of cities for which ratings of 90 percent or more have been reported by the State. If such surprise check rating is less than 90 percent but not less than 85, the city will be removed from the 90-percent list after 6 months unless a resurvey submitted by the State during this probationary interim shows a rating of 90 percent or more. If, however, such surprise check rating is less than 85 percent, the city will be removed from the list immediately.

Communities are urgently advised to bring their ordinances up to date at least every 5 years, since ratings will be made on the basis of later editions if those adopted locally are more than 5 years old.

Communities which are not now on the list and desire to be rated should request the State milk-sanitation authority to determine their ratings and, if necessary, should improve their status sufficiently to merit inclusion in the list.

Communities which are now on the list should not permit their ratings to lapse, as ratings more than 2 years old cannot be used.

Communities which have not adopted the Public Health Service Milk Ordinance may wish to give thoughtful consideration to the advisability of doing so. It is obviously easier to satisfy the requirements upon which the rating method is based if these are included in the local legislation.

Communities which are enforcing the Public Health Service Milk Ordinance, but which have not yet been admitted to the list, should determine whether this has been the result of failure to enforce the ordinance strictly or failure to bring the ordinance up to date.

State milk-sanitation authorities which are not now equipped to determine municipal ratings are urged, in fairness to their communities,

to equip themselves as soon as possible. The personnel required is small, as in most States one milk specialist is sufficient for the work.

The inclusion of a community in this list means that the pasteurized milk sold in the community, if any, is of such a degree of excellence that the weighted average of the percentages of compliance with the various items of sanitation required for Grade A pasteurized milk is 90 percent or more and that, similarly, the raw milk sold in the community, if any, so nearly meets the requirements that the weighted average of the percentages of compliance with the various items of sanitation required for Grade A raw milk is 90 percent or more. However, high-grade pasteurized milk is safer than high-grade raw milk, because of the added protection of pasteurization. To secure this added protection, those who are dependent on raw milk can pasteurize the milk at home in the following simple manner: Heat the milk over a hot flame to 155° F., stirring constantly; then immediately place the vessel in cold water and continue stirring until cool.

TABLE 1.—*Communities in which all market milk is pasteurized. In these communities market milk complies with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized milk ratings of 90 percent or more* [1]

Community	Percentage of milk pasteurized	Date of rating	Community	Percentage of milk pasteurized	Date of rating
ILLINOIS			MISSOURI		
Evanston	100	May 10, 1938.	St. Louis	100	June 1938.
Glencoe	100	May 13, 1938.	NORTH CAROLINA		
Highland Park	100	Do.			
Kenilworth	100	Do.	Clinton	100	Sept. 3, 1937.
Lake Bluff	100	Do.	Fort Bragg	100	Sept. 7, 1937.
Lake Forest	100	Do.	Greenville	100	Dec. 16, 1936.
Waukegan	100	May 16, 1938.	Princeville	100	Nov. 12, 1936.
Winnetka	100	May 13, 1938.	Sanford	100	June 22, 1937.
MINNESOTA			Tarboro	100	Nov. 12, 1936.
			Wilson	100	June 30, 1937.
Winona	100	Oct. 30, 1936.			

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

TABLE 2.—*Communities in which some market milk is pasteurized. In these communities the pasteurized market milk complies with the Grade A pasteurized milk requirements and the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized and raw milk ratings, respectively, of 90 percent or more* [1]

[NOTE.—All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method.]

Community	Percentage of milk pasteurized	Date of rating
ALABAMA		
Dothan	49	June 21, 1938.
Huntsville	82	Dec. 16, 1936.
Montgomery	25	May 28, 1938.
ARKANSAS		
El Dorado	40	June 1938.
Fayetteville	60	November 1937.
Fort Smith	33	June 1938.
Jonesboro	29	June 1937.
Little Rock	38	October 1937.
Pine Bluff	27	June 1938.
Texarkana	39	June 1937.
FLORIDA		
Coral Gables	93	May 12, 1938.
Fort Lauderdale	68	Mar. 17, 1938.
Hollywood	68	Do.
Key West	59	Mar. 14, 1938.
Miami	93	May 12, 1938.
Miami Beach	93	Do.
Pensacola	20	June 9, 1938.
Perry	39	June 21, 1938.
Pompano	68	Mar. 17, 1938.
ILLINOIS		
Chicago	99.7	Jan. 22, 1937.
INDIANA		
Frankfort	96	Mar. 31, 1938.
KANSAS		
Eldorado	25	April 1938.
Lawrence	61	January 1938.
Ottawa	13	Do.
Parsons	45	March 1938.
Salina	58	January 1938.
Topeka	48	December 1937.
Wichita	69	November 1937.
KENTUCKY		
Bowling Green	48	April 1937.
Glasgow	67	Do.
Louisville	98	June 1937.
MINNESOTA		
Albert Lea	97	Oct. 23, 1936.
Austin	77	May 19, 1938.
Little Falls	64	Dec. 1, 1937.
MISSISSIPPI		
Greenville	59	Dec. 22, 1937.
Tupelo	28	Oct. 19, 1937.
MISSOURI		
Clayton	99.9	June 1938.
Ferguson	80	Do.
Kirkwood	94	Do.
University City	99.6	Do.
Webster Groves	93	Do.
NEW MEXICO		
Deming	12	October 1937.
NORTH CAROLINA		
Albemarle	21	Feb. 10, 1938.
Asheville	67	June 23, 1938.
Burlington	87	Jan. 1, 1938.
Bryson City	50	Jan. 19, 1937.
Charlotte	34	June 10, 1937.
Durham	89	Apr. 3, 1937.
Elizabethtown	65	Sept. 1, 1937.
Fayetteville	52	Sept. 30, 1936.
Franklin	68	Jan. 20, 1937.
Goldsboro	39	Apr. 18, 1938.
Greensboro	70	November 1937
High Point	85	December 1937
Hope Mills	40	Sept. 30, 1936.
Kinston	17	Feb. 23, 1938.
New Bern	72	Nov. 26, 1937.
Oxford	7	May 20, 1937.
Reidsville	68	February 1938.
Rockingham	55	Nov. 3, 1937.
Rocky Mount	35	Dec. 19, 1936.
Salisbury	50	Dec. 2, 1937.
Winston-Salem	60	August 1937.
OKLAHOMA		
Bartlesville	42	Dec. 20, 1937.
Blackwell	34	May 10, 1938.
Muskogee	70	Mar. 16, 1938.
Okmulgee	55	Apr. 20, 1938.
Tulsa	72	Apr. 22, 1937.
OREGON		
Astoria	59	June 5, 1937.
Portland	78	August 1937.
TENNESSEE		
Clinton	75	June 9, 1938.
Dyersburg	21	May 13, 1937.
Knoxville	69	Apr. 16, 1937.
Memphis	84	June 3, 1937.
TEXAS		
Amarillo	62	July 3, 1937.
Big Spring	27	Mar. 22, 1937.
Brownwood	19	Aug. 11, 1937.
Corsicana	19	Mar. 12, 1937.
Dallas	75	May 3, 1937.
Fort Worth	80	February 1937.
Gainesville	60	Dec. 3, 1937.
Galveston	75	August 1936.
Midland	51	Mar. 23, 1937.
Port Arthur	41	June 1937.
San Angelo	60	Apr. 17, 1937.
San Antonio	70	Apr. 16, 1937.
Sweetwater	53	Mar. 18, 1937.
Texarkana	41	Mar. 24, 1937.
Waco	47	July 8, 1937.
UTAH		
Salt Lake City	96	Mar. 31, 1938.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

TABLE 2.—*Communities in which some market milk is pasteurized. In these communities the pasteurized market milk complies with the Grade A pasteurized milk requirements and the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized and raw milk ratings, respectively, of 90 percent or more*—Continued

Community	Percentage of milk pasteurized	Date of rating	Community	Percentage of milk pasteurized	Date of rating
VIRGINIA			WEST VIRGINIA		
Pulaski	39	May 28, 1937.	Huntington	65	Dec. 16, 1937.
WASHINGTON					
Camas	6	May 12, 1938.			
Vancouver	20	Do.			
Walla Walla	49	November 1937.			

TABLE 3.—*Communities in which no market milk is pasteurized, but in which the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by raw milk ratings of 90 percent or more* [1]

[Note.—All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method.]

Community	Date of rating	Community	Date of rating
KANSAS		NORTH CAROLINA—continued	
Horton	January 1938.	Manteo	Sept. 27, 1937.
MISSISSIPPI		Mount Holly	Oct. 28, 1937.
Brookhaven	May 31, 1937.	Mount Olive	Feb. 2, 1938.
Durant	June 9, 1937.	Pinehurst	Nov. 7, 1936.
Leland	Dec. 22, 1937.	Powellsville	Oct. 11, 1937.
Ocean Springs	Dec. 29, 1937.	Roxobel	Do.
Yazoo City	June 8, 1937.	Southern Pines	Nov. 11, 1936.
MISSOURI		Southport	Nov. 18, 1937.
Ash Grove	July 9, 1936.	Spindale	June 30, 1937.
NEW MEXICO		Sylva	June 21, 1937.
Raton	Dec. 21, 1937.	Tabor City	Mar. 30, 1938.
NORTH CAROLINA		Williamston	Nov. 19, 1936.
Ahoskie	June 25, 1937.	Windsor	June 24, 1937.
Angier	Mar. 23, 1938.	Winton	June 25, 1937.
Aulander	June 24, 1937.	OKLAHOMA	
Black Mountain	July 13, 1937.	Hobart	Jan. 19, 1938.
Bladenboro	Sept. 1, 1937.	Kingfisher	Nov. 22, 1937.
Brevard	Oct. 6, 1937.	SOUTH CAROLINA	
Canton	June 29, 1937.	Hartsville	Mar. 30, 1938.
Clarkton	Sept. 1, 1937.	TENNESSEE	
Coats	Mar. 23, 1938.	Jonesboro	June 24, 1937.
Colerain	Oct. 11, 1937.	Knox County	June 7, 1938.
Dunn	Mar. 23, 1938.	Ripley	May 13, 1938.
Elkin	Sept. 24, 1937.	Savannah	Apr. 22, 1938.
Erwin	Mar. 23, 1938.	TEXAS	
Fremont	Feb. 2, 1938.	Canyon	July 15, 1937.
Kelford	Oct. 11, 1937.	Colorado	Mar. 19, 1937.
Lewiston	Do.	Del Rio	June 8, 1937.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

APPENDIX

Sanitation Ratings of Milk Sheds

By LESLIE C. FRANK, *Senior Sanitary Engineer*, ABRAHAM W. FUCHS, *Senior Sanitary Engineer*, and WALTER N. DASHIELL, *Assistant Public Health Engineer, Division of Public Health Methods, National Institute of Health, United States Public Health Service*

INTRODUCTION

If a citizen wishes to determine whether the milk supplies of his community are being carefully safeguarded, he must ascertain not only whether the local milk ordinance is a good one, but also whether it is adequately enforced.

Approximately 800 American municipalities have now adopted the uniform milk ordinance recommended by the United States Public Health Service, but only 160 of these have as yet been considered by their State health departments to be adequately enforcing it. The citizens of many of the other 640 municipalities probably believe, because they have enacted a widely recognized milk ordinance, that their milk supplies are being carefully safeguarded, but, unfortunately, local jurisdictions have not always seen fit to give the health authorities the necessary financial backing and moral support for the effective enforcement of milk-sanitation measures. This fact at once points to the value of an enforcement rating system which will measure the degree of milk ordinance enforcement. Such a rating system accomplishes the following:

(1) It enables citizens and community officials to judge whether they are receiving a proper return for their milk sanitation appropriations.

(2) It therefore encourages adequate milk sanitation appropriations if the existing appropriations are too low to insure a high rating.

(3) It protects conscientious health officers and milk inspectors against unwarranted charges that they are inadequately enforcing milk sanitation.

(4) It enables the dairy industry to inaugurate more effective campaigns for increased milk consumption. Nothing increases the prestige of and the demand for milk so much as a high rating, well publicized to the consuming public.

(5) It facilitates the disposal of surplus milk and enlarges the markets of communities which attain high ratings. Communities in which milk shortages occur will give preference to "high rating" milk sheds.

For these reasons the United States Public Health Service some years ago developed a milk shed rating method which many State health departments are now using. Following is a description of that method.

DESCRIPTION OF RATING METHOD

The Public Health Service rating method uses as a yardstick the Grade A pasteurized and the Grade A raw milk requirements of the Milk Ordinance and Code recommended by the Public Health Service. These nationally recognized requirements, rather than the local requirements, are used as a yardstick in order that ratings of various cities may be comparable with each other, both intrastate and interstate. The rating method is so designed that if all pasteurization plants and their producing farms which supply a given community with pasteurized milk comply with all of the Grade A pasteurized milk requirements prescribed by the Public Health Service Milk Ordinance, the pasteurized milk rating of that community will be 100 percent, but if some of the plants or some of their producing farms fail to satisfy any of these requirements, the pasteurized milk rating of the community is reduced by an amount proportionate to the amount of milk sold by the violators and to the relative sanitation importance of the violated items.

Similarly, if all of the dairy farms which supply milk for consumption in its raw state comply with all Grade A raw milk requirements of the Public Health Service Milk Ordinance, the retail raw milk rating of that community will be 100 percent. If not the raw milk rating is decreased by an amount proportionate to the amount of milk sold by the violators and to the relative sanitation importance of the violated items.

Thus, each community in which both raw and pasteurized milk is sold receives two enforcement ratings, a pasteurized milk rating and a raw milk rating. These ratings *are not safety ratings* as will be made clear later on in this discussion, and as will be obvious if it is agreed that Grade A pasteurized milk is safer than Grade A raw milk. The ratings do, however, represent the degree to which the community concerned has enforced sanitation requirements designed to make pasteurized milk and raw milk, respectively, as safe as these grades may practicably be made.

Number of farms and plants to be included in the survey.—The minimum number of retail raw milk dairy farms, farms delivering milk to pasteurization plants, and pasteurization plants which should be included in the survey varies with the number of farms or plants in the milk shed. If an accuracy is desired such that the probable error of the individual percentages of compliance with the various items of sanitation will be less than 5 percent, the number of farms or plants which should be inspected in making the survey may be taken from the following table provided they are selected at random. The use of such a sliding scale was suggested by Mr. H. G. Oldfield, of the Minnesota State Health Department.

Number of farms or plants in milk shed:	*Number of farms or plants to be inspected if probable error of less than 5 percent is desired*
25–54	25
55–59	26
60–64	27
65–71	28
72–78	29
79–86	30
87–94	31
95–105	32
106–116	33
117–130	34
131–147	35
148–167	36
168–191	37
192–222	38
223–262	39
263–316	40
317–394	41
395–514	42
515–725	43
726–1,192	44
1,193–5,000	50
5,000–10,000	100
10,000 and over	200

The above table should be used in determining separately the number of retail raw milk dairy farms, the number of farms delivering milk to pasteurization plants, and the number of pasteurization plants which should be surveyed. If the total number in any of these groups is 25 or less, the entire number should be inspected.

Random selection of farms and plants to be surveyed.—The farms and plants which are included in the survey should be a representative and, therefore, a random sample. One satisfactory method of random selection is as follows:

If the milk shed of a community which is being surveyed includes more than 25 retail dairy farms, or more than 25 pasteurization plant producers, or more than 25 pasteurization plants, as the case may be, but not more than 500, their names may be written on small cards or slips of paper, only one name being placed on each slip. The names may then be thoroughly shuffled and the number indicated by the above table selected.

If the milk shed contains more than 500 farms it may be divided into inspection districts of approximately equal size, if not already done, and a random selection made of a number of districts equal to the number of days to be devoted to the survey of farms. Then the survey officer may make a random selection of one or more roads in each of the districts and inspect as many farms along these roads in each district as can be inspected in one day. No farms along the selected routes should be skipped, as this would violate the random selection principle.

If the community is served by more than 25 pasteurization plants it may be advisable to divide the plants into two or more groups according to relative sales volume, and to select from each group at random a proportion thereof equal to the proportion of the entire number of plants in the community which are to be included in the survey.

Methods of inspection.—In making the inspections the survey officer should ordinarily use the latest editions of the inspection forms issued by the Public Health Service. Figures 1 and 2 show the current (1936) editions of these forms. The forms may be purchased from the Superintendent of Documents, Washington, D. C. However, in order to avoid penalizing a community unnecessarily for failure to bring its ordinance up to date more often than once in 5 years, the survey officer may, at the request of the city, use inspection forms corresponding to the edition of the ordinance in force in the city, provided that edition is not more than 5 years old.

The Grade B rather than the Grade A raw milk requirements should be used in determining the rating of the farms delivering milk to pasteurization plants, since Grade A pasteurized milk is defined as being produced from Grade A or Grade B raw milk.

The various violations found during the survey should be entered upon the individual farm and pasteurization plant inspection sheets in the form of cross marks to indicate which items have been found to be violated. The number of gallons of milk, cream, buttermilk, or other milk products sold daily should be entered in the proper place at the top of each sheet.

Transfer of inspection results to rating computation form.—After the required inspections have been made, the results are transferred to large survey computation forms (Treasury Department Form 9421) which may be secured from the United States Public Health Service.

The name of the farm or plant, as the case may be, and the amount of milk and milk products sold daily should be entered in the first and second columns respectively. The number of gallons of milk and/or milk products representing a violation should be entered in each column representing a violated item. (See fig. 3, pp. 2, 3, and 4.)

Fractional credit is not given for fractional compliance as this has been found impracticable.

Although all inspections should be strictly in accordance with the code, care should be taken that only significant violations of a given item of sanitation are debited.

Bacterial counts, reduction times, and temperatures.—Violations of the requirements relating to bacterial counts, reduction times, or cooling temperatures are similarly debited by entering the number of gallons sold by the dairy or plant in the proper columns. The debit is made in any case when less than four samples from any given dairy or plant have been examined by the local health department during the preceding 6 months. If the survey officer collects and examines his own samples during the course of the survey, one sample of each retail raw supply, one sample of each pasteurized milk supply, and one composite sample of supplies received at each pasteurization plant may be used in determining violations.

Form [illegible]-A
U. S. TREASURY DEPARTMENT
PUBLIC HEALTH SERVICE
December 193[illegible]

U. S. PUBLIC HEALTH SERVICE

DAIRY FARM INSPECTION FORM

GALLONS SOLD DAILY

	Retail	To plant
Whole milk		
Buttermilk		
Cream		
TOTAL		

NAME ______ LOCATION ______

SIR: An inspection of your dairy has this day been made and you are notified of the defects marked below with a cross (X):

Item No.[1]

COWS

(1) *Tuberculosis and other diseases.*—Tuberculin test annually except in modified accredited counties (D), certificates on file (D), other tests as required (D), no cows with extensive induration of udder (D), no cows giving abnormal milk (D) ( )

DAIRY BARN

(2) *Lighting, milking barn.*—Adequate light openings (D), adequate artificial light for night milking (D) ( )

(3) *Air space and ventilation.*—Well ventilated (D), no overcrowding (D) ( )

(4a) *Floor construction, milking barn.*—Floors and gutters concrete or other impervious and easily cleaned material in good repair (B), tight wood (C), smooth clay (D), graded (D) ( )

(4b) *Floor cleanliness, milking barn.*—No accumulations beyond one milking (D), no horses, pigs, fowl, calves, etc. (D) ( )

(5) *Walls and ceilings.*—Painted biennially or whitewashed annually or other satisfactory finish (C), clean and in good repair (D), ceiling tight if feedstuffs over (C), feed-room partition dust-tight with door (C) ( )

(6a) *Cow yard, grading and draining.*—Graded (D), drained (D), no pooled wastes (D) ( )

(6b) *Cow yard, cleanliness.*—Clean (D), no swine (D) ( )

(7) *Manure disposal.*—Removed from barn between each milking, cow yard kept clean, manure stored inaccessible to cows and, during fly season: (*a*) Spread upon fields, or (*b*) piled not more than 4 days and then spread, or (*c*) stored not more than 7 days in impervious bin or curbed platform and then spread, or (*d*) stored in tight, screened, and trapped manure shed, or (*e*) fly breeding minimized by other approved methods (C) ( )

MILK HOUSE

(8a) *Floors.*—Smooth concrete or other impervious material (D), graded to drain (D) ( )

(8b) *Walls and ceilings.*—Smooth dressed lumber, sheet metal, or plaster board well painted with washable paint; hollow tile, cement blocks, bricks, concrete, or cement plaster, surfaces and joints smooth (D) ( )

(8c) *Lighting and ventilation.*—Effective window area at least 10 percent of floor area (D), adequate artificial lighting (see Code) (D), adequate ventilation (D), doors and windows closed during dusty weather (D). ( )

(8d) *Screening.*—All openings effectively screened and doors open outward and self-closing, unless flies otherwise kept out (D) ( )

(8e) *Miscellaneous requirements.*—Used for milk purposes only, except by permission (D), no opening into living quarters or stable (D), piped water (B), wastes properly disposed of (D), processes partitioned (B [2]), 2-compartment stationary wash and rinse vats, three[2] compartments if chlorine used (B), adequate water-heating facilities (D) ( )

(9) *Cleanliness and flies.*—Floors, walls, windows, shelves, tables, and equipment clean (D), no trash or unnecessary articles (D), all necessary fly-control methods (D) ( )

TOILET

(10) *Toilet.*—Conveniently located (D), constructed and operated according to Code (D), no evidence of defecation or urination about premises (D) ( )

Item No.[1]

WATER SUPPLY

(11) *Water supply.*—Easily accessible (D), adequate (D), no surface or cistern water unless approved (D), safe, sanitary quality (see Code) (D) ( )

UTENSILS

(12) *Construction.*—Heavy gage material (C), corrosion-proof surface, no agateware (C), easily cleanable shape (C), joints soldered flush (C), good repair (C), no woven-wire cloth (C), milk pails small-mouth design (C) ( )

(13) *Cleaning.*—Cleaned after each usage (D), must look and feel clean (D) ( )

(14) *Bactericidal treatment.*—Steam cabinet 170° F. for 15 minutes or 200° F. for 5 minutes, or steam jet 1 minute, or standard chlorine for 2 minutes, or submerged 170° F. water for 2 minutes (D) ( )

(15) *Storage.*—Left in treating chamber until used or stored inverted in protected place in milk house (D), cotton disks in original package until used (D) ( )

(16) *Handling.*—After bactericidal treatment no handling of surfaces to which milk is exposed (D) ( )

MILKING

(17) *Udders and teats.*—Clean at time of milking (D), abnormal milk excluded (D) ( )

(18) *Flanks.*—Flanks, bellies, and tails free from visible dirt at time of milking (D), brushing completed before milking begun (D) ( )

(19) *Milkers' hands.*—Clean (D), rinsed in standard chlorine solution just before milking each cow (D), dry while milking (D), hand-washing facilities including soap, water, and individual clean towels convenient to milking barn (D) ( )

(20) *Clothing.*—Clean outer garments (C) ( )

(21) *Milk stools.*—Metal or other impervious material (C), clean, not padded (C), stored above floor (C) ( )

(22) *Removal of milk.*—Immediate removal of milk to milk house (C), no straining or pouring in barn (C) ( )

(23) *Cooling.*—Retail milk cooled immediately after milking completed to 50° F. or less and so maintained until delivery to consumer (B), 60° F. (C); raw to plant milk either delivered, or cooled to 50° F., within 2 hours after milking completed (B), 70° F. (C) ( )

BOTTLING AND CAPPING

(24) *Bottling and capping.*[2]—Sanitary bottle filler (C), no hand capping (C), clean capper (C), caps kept in sanitary tubes in clean dry place until used (C), first cap discarded (C) ( )

EMPLOYEES

(25) *Personnel, health.*[2]—Required examinations and tests (B), rejected persons not employed (B) ( )

MISCELLANEOUS

(26) *Vehicles.*—Clean (C), covered (C), covers permanent (B), no contaminating substances transported (C), distributor's name shown (C); *Premises.*—Surroundings kept neat and clean (C) ( )

Date ______ ______, Inspector.

[1] Item numbers correspond to item numbers for Grade A raw milk in 1936 edition of United States Public Health Service Milk Ordinance and Code, to which please refer.
[2] Not required for milk to be pasteurized.

U. S. GOVERNMENT PRINTING OFFICE [illegible]

FIGURE 1

Form 2359-C
U.S. TREASURY DEPARTMENT
PUBLIC HEALTH SERVICE
December 1935

U. S. PUBLIC HEALTH SERVICE

PASTEURIZATION PLANT INSPECTION FORM

GALLONS SOLD DAILY

Whole milk	
Buttermilk	
Cream	
TOTAL	

Name _____ Location _____

Sir: An inspection of your plant has this day been made, and you are notified of the defects marked below with a cross (X).

Item No.

(1) *Floors.*—Smooth finish, no pools ( ), wall joints and floor surface impervious ( ), trapped drains ( ), clean and free of materials and equipment not in routine use ( ) ( )

(2) *Walls and ceilings.*—Smooth, washable, light-colored finish ( ), clean and in good repair ( ) ( )

(3) *Doors and windows.*—Outer openings with effective screens and self-closing doors, or fly-repellent fans or flaps, or flies otherwise kept out ( )

(4a) *Lighting.*—Adequate artificial light evenly distributed (see Code) ( ), in new plants, window and skylight area 10% of floor area ( ) ( )

(4b) *Ventilation.*—Ample to prevent undue condensation and odors ( )

(5) *Miscellaneous protection from contamination.*—Processes partitioned ( ), rooms of sufficient size ( ), raw milk not unloaded directly into pasteurization room ( ), dump vats covered ( ), flies under control ( ), no woven-wire strainers, no straining pasteurized milk except through perforated noncorrodible metal ( ), pasteurized milk not in contact with unsterilized raw-milk equipment ( ), no raw-milk bypasses around pasteurizers ( ), no direct openings to stables or living quarters ( ), no drip from mezzanine floor ( ) ( )

(6) *Toilet facilities.*—Comply with plumbing code ( ), good repair ( ), clean ( ), ventilated ( ), no direct opening ( ), self-closing doors ( ), free of flies ( ), washing sign ( ), privies, if used, comply item 10r ( ) ( )

(7) *Water supply.*—Sufficient outlets ( ), adequate ( ), safe, source complies item 11r ( ) ( )

(8) *Hand-washing facilities.*—Convenient warm water ( ), soap ( ), sanitary towels ( ) ( )

(9) *Milk piping.*—Sanitary type, easily cleanable size and length ( ), smooth uncorroded surfaces ( ), sanitary fittings, interior surfaces accessible for inspection ( ) ( )

(10) *Construction and repair of containers and equipment.*—Easily cleanable, smooth noncorrodible surfaces ( ), no open seams ( ), good repair ( ), equipment self-draining ( ), pressure-tight seals on submerged thermometer openings ( ) ( )

(11) *Disposal of wastes.*—In public sewer or as approved by State board of health ( ), trash and garbage kept in covered containers ( ) ( )

(12a) *Cleaning of containers and apparatus.*—Containers thoroughly cleaned after each usage ( ), apparatus each day ( ) ( )

(12b) *Bactericidal treatment of containers and apparatus.*—Containers treated after each usage to reduce bacterial count to not more than 1 per cc of capacity ( ), assembled apparatus once daily immediately before run, with steam flow 200° F., or hot-water flow 170° F. or standard chlorine solution flow, at outlets for 5 minutes; for 15-second pasteurizers hot-water method required ( ), supplementary treatment for equipment not thus reached ( ) (see Code) ( ) ( )

(13) *Storage of containers.*—Inverted in crates or on racks in clean place free of flies, splash, dust ( ) ( )

(14) *Handling of containers and apparatus.*—No handling of surfaces to which milk is exposed ( ) ( )

(15) *Storage of caps, etc.*—Caps purchased in tubes, parchment paper for caps in cartons ( ), kept in clean dry place ( ), first cap and paper discarded ( ) ( )

(16a) *Indicating and recording thermometers.*—Approved indicating and recording thermometer on each manually timed holder throughout pasteurization, and at both inlet and outlet of automatically timed holders (15-second pasteurizers, at holder inlet only—see Code) ( ), all indicating thermometers checked monthly by inspector and found correct ( ) ( )

Item No.

(16b) *Maintenance of pasteurization time and temperature.*—Charts of manually timed holders must show 143½° F. for 30 minutes (longer, where required); charts of automatically timed systems must show 143½° F. for the 30-minute method, or 160° F. for the 15-second method, throughout run except when chart shows milk flow stopped ( ), milk in all vats and pockets effectively agitated throughout holding period unless exempted by Code ( ), automatic systems must have induction-type (A. C.) motors for milk pumps or timing devices, and approved thermostatic control and milk-flow stop with automatic stop and start (see Code) ( ), tests of automatic systems must have shown required holding time ( ), all charts used only one day, preserved for 3 months, and must show date, location, temperature check against indicating thermometer daily by operator and biweekly by inspector (initials), amount, grade, and product represented, operator's signature ( ), also, if milk-flow stop used, cut-in and cut-out temperature check daily by operator and monthly by inspector (initials) ( ) ( )

(16c) *Inlet and outlet valves and connections.*—Approved leak-protector inlet and outlet except as per Code ( ), inlet provided with air relief if submerged ( ), close-coupled outlet ( ), valves kept fully closed ( ), inlet and outlet disconnected if not leak-protected ( ), outlet sterilized just before discharge if not leak protected, or if "vented area" encountered, or if leakage accumulates in channel ( ) ( )

(16d) *Foam heating.*—Air above milk in vats and pockets must be heated at least 5° F. above milk temperature during heating and at least 5° F. above pasteurization temperature during holding with approved properly operated device ( )

(16e) *Vat and pocket covers and cover parts.*—Correct design so that nothing on top will drop into milk ( ), kept closed ( ) ( )

(16f) *Preheating holders.*—Holders not used as heaters must be preheated to pasteurization temperature immediately before use ( )

(17) *Cooling.*—All raw milk and cream pasteurized or cooled to 50° F. within 2 hours of receipt ( ), pasteurized milk cooled to 50° F. and held thereat until delivery ( ), header gap on surface coolers not less than ¾ inch or thickness of header at gap ( ), condensation from cooler supports and headers, unless completely enclosed in covers, directed away from tubes and milk trough ( ), cooler covered or in separate room ( ), cooler shields noncorrodible, seams flush, tight fitting, easily cleaned ( ), pasteurized milk or heat transfer medium under greater pressure than raw milk in regenerators (see Code) ( ) ( )

(18) *Bottling.*—Mechanical bottler, simple design requiring infrequent adjustment ( ), smooth, noncorrodible material ( ), properly covered ( ), readily cleanable ( ), float adjustable without lifting cover ( ), filler pipe equipped with condensation diverting apron ( ), infeed conveyors with overhead shields ( ) ( )

(19) *Overflow milk.*—Discarded ( )

(20) *Capping.*—Mechanical capper integral with bottler requiring infrequent adjustment ( ), imperfectly capped bottles dumped and repasteurized ( ) ( )

(21) *Personnel, health.*—Required examinations and tests ( ), rejected persons not employed ( ) ( )

(22) *Personnel, cleanliness.*—Clean outer garment, washable for inside employees ( ), hands clean ( ) ( )

(23) *Miscellaneous.*—Vehicles.—Clean ( ), covered ( ), no contaminating substances transported ( ), distributor's name shown ( ); *Premises.*—Surroundings kept neat and clean ( ) ( )

Date _____ _____, Inspector.

The item numbers correspond to the item numbers for Grade A Pasteurized Milk in the 1935 edition of the Public Health Service Milk Ordinance and Code, to which please refer if required for new equipment only.

FIGURE 2

(State) Health Department

Survey by A. L. Scott
Title State Milk Supervisor
Computed by HB 7-19-38
Checked by WHD 7-19-38
Report transmitted

REPORT OF MILK SANITATION STATUS OF Blacksburg (State) AS OF July 2-6, 1938

Population 42,000 Health Officer Dr. L. C. Jones Milk Inspector Wm. Green USPHS Ordinance adopted Sept. 1935 Survey based on 1936 edition of code

SUMMARY OF SURVEY RESULTS

Number of retail raw dairies	7	Total gallons of raw and pasteurized milk, etc., sold daily	4225
Number of retail raw dairies inspected	7	Percentage of milk, etc., pasteurized	72.4%
Number of plant producers	33	Consumption of market milk, etc., in pints per capita daily	.82
Number of plant producers inspected	29	USPHS. rating of retail raw milk	73.6
Number of pasteurization plants	6	USPHS. rating of raw milk sold to plants	84.5
Number of pasteurization plants inspected	6	USPHS. rating of pasteurization plants	70.5
Total gallons of retail raw milk, etc., sold daily	1155	USPHS. rating of pasteurized milk	90.0
Total gallons of pasteurized milk, etc., sold daily	3070	USPHS. rating of enforcement methods	86.5

RECOMMENDATIONS OF SURVEY OFFICER

It is recommended that:

(1) Increased attention be devoted to the following items of sanitation for which percentages of compliance less than 75% have been found during this survey.

Retail raw milk - 4r(a), 5r, 6r(a), 7r, 8r(a), 9r(b), 9r(i), 10r, 19r, 19r, 21r, 24r, and 25r.

Raw milk sold to plants - 8r(b) and 8r(d)

Pasteurization plants - 16p(b) and 21p.

(2) Increased attention be devoted to items 1, 4, 5, 10, 11, 12, and 13 of the "Report upon Enforcement Methods"

(3) The provision of the ordinance, which requires milk intended for consumption in the raw state to be bottled at the farm at which it is produced, be enforced.

REPORT UPON ENFORCEMENT METHODS

	SCORE	WEIGHT	GRADE	REMARKS
Inspection. (1) Requirements interpreted strictly in accordance with P.H.S. Milk Code?	70	10.0	7	A few items not interpreted strictly in accordance with code.
(2) All dairies and plants inspected at least once each grading period?	100	10.0	10	
(3) Are tuberculin test records carefully checked?	100	5.0	5	
(4) Pasteurization temperature and chlorine strength checked?	40	5.0	2	
(5) Pasteurization plant thermometer and thermometer charts checked?	60	10.0	6	Indicating thermometers not checked monthly as required by code.
(6) Is milk served in original containers in restaurants, etc.?	80	5.0	4	
Samples. (7) Is laboratory work done in accordance with latest standard methods?	100	5.0	5	
(8) Are at least four samples per supply per grading period collected?	100	10.0	10	
Grading. (9) Are grades determined and announced at least twice each year?	100	10.0	10	
Last four dates 7-1-37, 1-1-38, 7-1-37, 1-1-37.				
(10) Were grades correctly announced according to records?	100	10.0	10	
Supplementary Reporting. (11) Is supplementary reporting done between grading announcements?	90	5.0	4	
Labeling and Plumbing. (12) Are bottles and cans properly labeled?	80	5.0	4	Cans of milk should be properly labeled.
(13) Are restaurants, etc., carrying proper placards or notices?	70	5.0	35	All restaurants should be required to carry placards or menu notices of grade of milk served
Records. (14) Are records being systematically and fully kept?	80	5.0	4	
USPHS. ENFORCEMENT RATING			86.5	

FIGURE 3 (page 1)

Page 2

City, county, or district Blacksburg (State)
Date of survey 6-2-38

STATUS OF RETAIL RAW MILK

U.S.P.H.S. RATING (79.2)

ITEMS OF SANITATION (DAIRY BARN — Floors — Cow Yard; MILK HOUSE; UTENSILS; MILKING)

Name of dairy	[illegible]	1	2	3	4a	4b	5	6a	6b	7	8a	8b	8c	8d	8e	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	[illegible]	[illegible]	Remarks
Jones, W. R.	40							40		40				40			40					40						40			40				A	
Beard, E. M.	60			60			60				60							60					60			60									A	
Taylor, A. L.	30						30	30	30				30								30					30			30						B	
Brown, L. C.	25					25				25		25				25			25					25							25		25		A	
Lakeview Dairy	105				105			105			105			105			105				105					105		105			105	105			A	(Produces 35 gallons and buys 70)
Green, John					✓									✓			✓											✓								Sells 30 gallons to Lakeview Dairy
Black, L.								✓						✓							✓					✓						✓				Sells 40 gallons to Lakeview Dairy
Roberts, L.	20				20			20		20				20				20	20							20		20			20				D	
Sunshine Dairy	45		45			45		45	45						45						45					45	45						45		A	
	325																																			
Gallons violating			45	60	125	70	90	240	75	85	165	25	30	165	45	25	145	80	45		180	40	60	25		260	45	165	30		190	105	70			
Gallons complying																																				
Percent complying			86.2	81.5	61.5	78.5	72.3	26.2	76.9	73.9	49.2	92.3	90.8	49.2	86.2	92.3	55.4	75.4	86.2	100.0	44.6	87.7	81.5	92.3	100.0	20.0	86.2	49.2	90.8	100.0	41.5	67.7	78.5	100.0		
Weight		15.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00	1.00	1.00	2.00	1.00	2.00	4.00	4.00	4.00	4.00	5.00	2.00	1.00	4.00	1.00	4.00	1.00	1.00	1.00	5.00	4.00	3.00	1.00	15.00		
Credit		15.0	.86	.82	.62	.79	.72	.26	.77	3.0	.49	.92	.91	.98	.86	1.8	2.2	3.0	3.4	4.0	2.2	1.8	.82	3.7	1.0	.80	.86	.49	.91	5.0	1.7	2.0	.79	15.0	(79.2)	

FIGURE 3 (page 2)

STATUS OF RAW MILK SOLD TO PLANTS

Page 3

City, county, or district Blacksburg (State)
Date of survey 6-2-38
U.S.P.H.S. RATING (89 %)

ITEMS OF SANITATION
(Note.—If a producer violates a given item, the number of gallons of milk he sells daily is entered under the item number)

Name of producer	Gallons sold daily	1 Cows, tuberculosis and other diseases	Dairy barn: 2 Lighting	3 Ventilation	Floors: 4a Construction	4b Cleanliness	5 Walls and ceilings	Cow yard: 6a Drainage	6b Cleanliness	7 Manure disposal	Milk house: 8a Floor construction	8b Walls and ceilings	8c Lighting and ventilation	8d Screening	8e Miscellaneous	9 Cleanliness and flies	10 Toilet	11 Water	Utensils: 12 Construction	13 Cleaning	14 Bactericidal treatment	15 Storage	16 Handling	Milking: 17 Udders	18 Flanks, etc.	19 Hands	20 Clothing	21 Stools	22 Immediate removal	23 Cooling	24 Miscellaneous	Bacterial count or reduction time	Grade now held	Remarks
Doe, John	100								100													100											B	
Giles, R.	80		80		80																80					80				80			B	
Gill, W. T.	100						100					100				100															100		B	
Goodman, Robt.	40					40			40										40				40					40					B	
Leach, A. B.	130			130								130		130																		130	B	
Locke, E.	70				70											70								70		70							B	
Massie, C. T.	75		75											75					75														B	
Ogden, Frank	85																85											85			85		B	
Baines, G. H.	60					60			60															60						60			B	
Schick, J. R.	25				25		25							25							25					25							B	
Sliger, L. L.	150									150		150																					B	
Stewart, Jim	40								40						40						40											40	B	
Wagner, A. T.	80				80									80										80					80		80		D	
White, E. C.	60									60								60									60						B	
Tracy, C. C.	40					40			40																			40					B	
Snow, D. T.	120											120		120							120					120							B	
Rankin, C. S.	40	40	40											40																			B	
Pitts, T.	55			55											55		55													55			B	
McCurdy, Wm.	110								110			110												110									B	
Maddox, E. C.	200				200																200												B	
Lind, S. G.	60			60						60				60											60			60			60		B	
King, F. C.	120						120										120																B	
Armstrong, F. D.	40				40				40						40					40				40								40	B	
Jones, L.	130	130										130																130					B	
Hawkins, C. T.	50					50								50									50										B	
Total Gallons	2060																																	
Gallons violating		170	195	245	495	190	245		430	270		790		580	135	170	260	60	115	40	465	160	90	360	60	295	60	355	80	195	325	210		
Percent complying (Blacksburg)		91.7	90.5	88.1	76.0	90.8	88.1	100	79.1	86.9	100	61.7	100	71.9	93.4	91.7	87.4	97.1	94.4	98.1	77.4	92.2	95.6	82.5	97.1	85.7	97.1	82.8	96.1	90.5	84.2	89.8		
Percent complying (Greensboro [illegible])		100	96.0	87.2	78.1	92.0	89.2	96.0	82.1	85.0	95.0	83.0	84.0	86.7	94.1	82.7	88.1	92.0	96.0	87.3	84.1	78.2	84.3	80.7	91.0	91.2	86.1	87.0	78.0	87.1	94.2	90.0		From Greensboro survey of 8-9-37
Weighting Procedure																																		
Percent complying (Blacksburg) x .837		76.8	75.7	73.7	63.6	76.0	73.7	83.7	66.2	72.7	83.7	51.7	83.7	60.2	78.2	76.7	73.2	81.3	79.0	82.1	64.8	77.2	80.0	69.1	81.3	71.7	81.3	69.3	80.4	75.7	70.5	75.2		(2060/[illegible] = .837)
Percent complying (Greensboro) x .163		16.3	15.6	14.2	12.7	15.0	13.7	15.6	13.4	13.9	15.5	13.5	13.7	14.1	15.3	13.5	13.5	15.0	15.6	14.2	13.9	12.7	13.7	13.2	14.8	14.9	14.0	14.2	12.7	14.2	15.4	14.7		([illegible] = .163)
Gallons violating																																		
Gallons complying																																		
Weighted Percent complying		93.1	90.5	87.9	76.3	91.0	87.9	99.3	79.6	86.6	99.0	67.2	97.4	74.3	93.5	90.3	86.7	96.3	94.6	96.5	78.2	89.9	93.7	82.3	96.1	86.6	95.3	83.5	94.9	89.9	85.9	89.9		
Weight		15.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	5.00	1.00	1.00	1.00	2.00	1.00	2.00	5.00	5.00	5.00	5.00	5.00	2.00	1.00	5.00	2.00	5.00	1.00	1.00	1.00	5.00	1.00	15.00		
Credit		14.0	.91	.88	.76	1.8	.88	.99	.80	4.3	.99	.67	.97	1.5	.94	1.8	4.3	4.8	4.7	4.8	3.9	1.8	.94	4.1	1.9	4.3	.95	.84	.96	4.5	.86	13.5	(89.3)	

FIGURE 3 (page 3)

Page 4

City, county, or district Blacksburg (State)
Date of survey

STATUS OF PASTEURIZATION PLANTS

U.S.P.H.S. RATING (91 90)

ITEMS OF SANITATION

NAME OF PLANT	[illegible]	1	2	3	4a	4b	5	6	7	8	9	10	11	Containers and equipment 12a	12b	13	14	15	Pasteurization 16a	16b	16c	16d	16e	16f	17	Bottling and capping 18	19	20	Personnel 21	22	23	[illegible]	[illegible]	REMARKS
Sanitary Milk Co.	920				420						920											30(1)									920		A	
Olney Dairy	480																480			480										480			A	
Jones Milk Co.	920			600(3)																			30(2)						920				A	
Smiths Dairy	100											100			100					100					100				100				C	
Pure Milk Co.	800					800		800						800				800															A	
Zenith Milk Co.	390																					10(2)											A	
Waggener's	900(4)	900								900																							A	(5)Jonesboro Plant - From Survey of 8-9-37
Central Dairies	250(4)				250							250								250													A	(5)Jonesboro Plant - From Survey of 8-9-37
	(4) 3770																																	
Gallons violating		900		600	670	800		800		900	920	350		800	100		480	800		830		40	30		100				1020	480	920			
Gallons complying																																		
Percent complying		81.9	100.0	87.4	85.9	79.9	100.0	79.9	100.0	81.1	79.9	91.2	100.0	79.9	97.5	100.0	84.9	79.9	100.0	74.1	100.0	98.5	97.0	100.0	97.5	100.0	100.0	100.0	71.3	82.9	80.9	100.0		
Weight		1.00	1.00	4.00	1.00	1.00	2.00	4.00	4.00	1.00	2.00	2.00	1.00	4.00	5.00	2.00	2.00	1.00	4.00	15.00	5.00	2.00	1.00	2.00	5.00	2.00	1.50	2.00	5.00	1.00	1.00	15.00		
Credit		.90	1.0	3.4	.83	.80	2.0	1.2	4.0	.90	1.8	1.8	1.0	3.2	4.9	2.0	1.7	.80	5.0	11.1	5.0	2.0	.97	2.0	4.9	2.0	1.0	2.0	3.6	.85	.81	15.0	(90.5)	

(1) Cream only
(2) Buttermilk only
(3) Smithville Receiving Station
(4) Does not represent total gallons but only gallons sold in Blacksburg

FIGURE 3 (page 4)

For communities in which the local ordinance does not require sampling four times every 6 months, the survey officer may accept one sample per 6 months, or may take and analyze his own samples during the survey as indicated above; or, in lieu thereof, may assume percentages of compliance for these items equal to the mean percentage compliance for all other items of sanitation. The procedure adopted should be noted on the survey report. The above procedure may also be used for communities in which the adoption of the Public Health Service Milk Ordinance is less than 1 year old.

Computation of ratings.—In computing the ratings each column is totaled to obtain the number of gallons violating the item. Subtracting the latter from the total number of gallons sold by all surveyed farms or plants, as the case may be, gives the gallons complying with that item. Dividing the "gallons complying" by the total number of gallons and multiplying by 100 gives the percentage compliance for that item.

Each of these percentages is multiplied by the weight assigned to the item in question and which is intended to represent roughly the relative sanitation importance of the item, and is then divided by 100. The sum of these products will then give the rating in percentage.

The above process is applied successively to the retail raw milk, the raw milk sold to pasteurization plants, and to the pasteurization plants. The average of the "raw-to-plant" rating and the pasteurization plant rating will give the pasteurized milk rating.

Procedure to be followed when a community receives part of its milk supply from another community.—In determining the ratings of a community which receives part of its milk supply from another community it will be necessary to rate the shipping community for that part of its milk supply involved in the shipments, unless a rating not more than 2 years old is already available.

The following procedure should be used in combining the ratings of the shipped-in and the local milk.

(*1*) *The rating of farms delivering milk to pasteurization plants.*—The individual percentages of compliance of the shipped-in milk and of the local milk should be weighted by decimals representing, respectively, the shipped-in and the local milk volumes which make up the total local sales of pasteurized milk. Thus, if 10,000 gallons of pasteurized milk are sold in a community of which 2,000 gallons are shipped in from another community, the weights to be used are 0.8 and 0.2 for the local and the shipped-in milk supplies, respectively.

(*2*) *The rating of pasteurization plants.*—The shipping plants and the number of gallons shipped may be entered directly upon the pasteurized milk rating form just as in the case of local plants, but must be properly identified in the remarks column as to location.

(3) *Retail raw milk ratings.*—The same procedure is used as under (2) above.

Figure 3 shows a specimen rating of a community which receives part of its milk supply from another community.

Procedure when less than the entire output of a milk distributor is involved in the violation.—When only one kind of milk or milk product is involved in a given violation, only the number of gallons of the kind of milk or milk product involved should be debited. Thus, if a pasteurization plant sells 4,000 gallons of milk and 500 gallons of buttermilk and a given violation relates to a vat used exclusively for buttermilk, only 500 gallons should be debited against the given item on the rating sheet. The same rule is followed in the case of cream, chocolate milk, and other products. The product involved in the violation should be indicated by a proper footnote.

Procedure relative to receiving stations.—A receiving station should be considered as an integral part of the milk plant which receives its milk and should be inspected as if it were part of the plant. The pasteurization plant items of sanitation which apply to receiving stations are items 1p to 14p, inclusive, and 17p, 19p, 21p, 22p, and 23p.

If a receiving station is found to violate any of these items, the number of gallons received by the plant from this receiving station should be entered as a violation of the item concerned, and be identified by a footnote.

If milk from a given receiving station goes to more than one pasteurization plant, the station should be considered as a part of each plant to which it ships milk.

Procedure in case of new dairy farms or milk plants and in case of change of ownership.—Dairy farms and pasteurization plants which have had a permit for less than 3 months at the time of a given survey and for which the health department has not yet secured four samples should not be charged with bacterial count, reduction time, or temperature violations.

Where change of ownership within 3 months is involved, samples taken before and after the change may be combined in determining violations.

Procedure when a retail raw milk distributor distributes the supplies of a number of producers.—Since section 10 of the Public Health Service Milk Ordinance requires that all raw milk shall be bottled at the farm at which it is produced, and since it must be assumed that any customer of a retail raw milk distributor who violates this requirement may receive part of the milk of any of the producers involved, the total number of gallons handled by the distributor should be charged opposite his name against any item of sanitation which is

violated either by the distributor or by any of his producers. Opposite these producers' names should appear check marks in the columns representing violations. The number of gallons produced should appear in the remarks column (not in the second column as this would cause a false total in this column). The producers supplying the distributor should be entered immediately under the distributor's name. The entire supply should also be considered as a single unit in the case of bacterial counts and cooling temperatures.

Report on enforcement methods.—This report is included in the rating method to indicate any failure to carry out the enforcement procedure required by the ordinance. The items included in this report are shown on page 1 of the attached specimen rating. The estimate of compliance should be expressed in percentage. For communities in which only raw milk is sold, item 5 should be given 100 percent in order to avoid penalizing such communities for failure to carry out instructions relative to a product which is nonexistent.

Recommendations of survey officer.—The section of the rating form which is provided for the recommendations of the survey officer should preferably include the following:

(1) A brief discussion of the general status of milk sanitation, with a list of items of sanitation for which percentages of compliance of less than 75 percent have been found, and to which special attention is directed.

(2) A statement, if indicated, as to the adequacy of the existing milk ordinance, and as to any recommended amendments, or recommendations for the adoption of a new milk ordinance.

(3) A statement as to whether the existing milk sanitation personnel and funds are adequate and recommending additional personnel or funds where indicated.

(4) A statement directing attention to any shortcomings indicated in the report on enforcement methods.

SIGNIFICANCE OF RATINGS

These ratings are compliance ratings and not safety ratings. A high rating does not necessarily mean that all of the milk supplies sold in the community in question are safe, nor does a low rating necessarily mean that all of the milk supplies sold in a community are unsafe. Neither the present rating method nor any other rating method thus far devised is an absolute measure of safety.

Nevertheless, a pasteurized milk rating of 90 percent, determined as previously described, does mean that the pasteurized milk supplies in general of the community in question are as safe as a reasonably strict enforcement of the milk ordinance recommended by the Public Health Service will make them. Citizens who limit their purchases of milk to Grade A pasteurized milk secured from communities with 90

percent ratings may, for all practical purposes, ignore the danger of milk-borne infection.

The safest communities, from the standpoint of milk-borne disease, are those in which all milk is pasteurized and in which the pasteurized milk rating is 90 percent or more.

However, in the vast majority of communities it has not as yet been possible to secure the pasteurization of all milk supplies. For these communities the retail raw milk rating portrays the degree to which there have been applied such measures as will make raw milk as safe as practicable short of pasteurization. Such of these communities as attain retail raw milk ratings of at least 90 percent know that they have protected that part of their population which persists in drinking raw milk at least as much as raw milk consumers can practicably be protected.

In communities in which any raw milk is permitted to be sold, the health officer should persistently advise milk consumers who insist upon purchasing raw milk, or who cannot secure properly pasteurized milk, to purchase Grade A raw or certified raw milk and pasteurize it at home. One method of home pasteurization is as follows: Heat the milk over a hot flame to 155° F., stirring constantly; then immediately place vessel in cold water and continue stirring until cool.

PUBLICATION OF RATINGS

Most States now report milk-shed ratings to the Public Health Service, which publishes semiannually in PUBLIC HEALTH REPORTS a list of all communities which have been awarded ratings of 90 percent or more for both raw and pasteurized milk, if both are sold, together with their respective percentages of pasteurization.

The following recommendations are made relative to the publication of ratings by State boards of health, and their transmission to city authorities:

(1) It is recommended that the State board of health publish periodically in the newspapers and in other appropriate public organs the names of all communities in the State which attain milk-shed ratings of 90 percent or more, and supplement the list with a statement that the local health authorities of other cities have been urged to hold meetings with local interests in an effort to determine means of raising their ratings to the 90-percent class.

(2) In accordance with the above it is recommended that the State health officer address a communication to each local health officer whose community receives a rating of less than 90 percent, recommending that he call a meeting, in which are represented the city officials, the women's and men's civic organizations, the dairy industry, and the health department, for the purpose of discussing ways and means of improving the milk-shed rating.

A Comparison of the Precipitation Reaction in Immune Serum Agar Plates with the Protection of Mice by Antimeningococcus Serum [1]

By MARGARET PITTMAN, *Associate Bacteriologist*, SARA E. BRANHAM, *Senior Bacteriologist*, and ELSIE M. SOCKRIDER, *National Institute of Health, United States Public Health Service*

Branham and her associates have investigated the suitability of several species of laboratory animals for use in the standardization of antimeningococcus serum (*1*). In 1935 she reported results which indicated that the mouse was a suitable animal for the study of the protective action of antimeningococcus serum (*2*). In this work large doses of meningococci were used, since a suitable preparation of mucin was not available.

In 1933 Miller (*3*) reported that a suspension of mucin injected with meningococci made possible the initiation of a lethal infection in a mouse with a dose of fewer than 100 meningococci. This observation stimulated a number of studies on the mouse-protective activity of antimeningococcus serum. Reports have been made by Miller (*4*), Rake (*5*), Cohen (*6*), Mishulow and Melman (*7*), and Miller and Castles (*8*), each of whom has shown that mice may be protected against many lethal doses of meningococci. Their work also shows that the results were influenced by many variable factors, such as virulence of culture, preparation of mucin, and strain of mice.

In undertaking a study of the mouse-protective activity of antimeningococcus serum with mucin, the results of which would be influenced by so many variable factors, it seemed especially desirable to have for comparison some *in vitro* test for estimating the amount of type-specific antibodies in the serum. Preliminary experiments showed that a comparative estimate of these antibodies could be made by growing type-specific meningococci on agar plates containing varying amounts of the antiserum and determining the intensity of the halos which developed around the implanted colonies.

The development of halos around colonies of meningococcus on agar plates containing immune serum was first described by Petrie (*9*) in 1933. He considered that the halo was due to a precipitate resulting from the interaction of type-specific carbohydrate and homologous antibody. Later work by Maegraith (*10*) and by Kirkbride and Cohen (*11*) has substantiated his theory. Kirkbride and Cohen also observed that different lots of polyvalent antiserum may vary a great deal in precipitative activity. In the testing, they used a constant amount of serum.

The results of a comparative study of the mouse-protective activity with the precipitation in immune serum agar plates made with a

[1] Read before the Society o fAmerican Bacteriologists, Washington, D. C., December 28, 1937.

number of polyvalent antimeningococcus sera are presented in this report.

EXPERIMENTAL

Sera.—Samples of polyvalent antimeningococcus horse sera, sent routinely to the National Institute of Health for approval, and the National Institute of Health control M18 were used. All sera, with one exception, met the present standard requirement, which is based upon the agglutinin titer at 56° C.

In order to have some means of comparing the mouse-protective activity of the samples of sera with the control, the number 100 was arbitrarily selected to represent the potency of 1 cc of M18 against the selected strain of group I–III meningococcus. An expression of the potency in "units" is avoided at this time. No value against Type II meningococcus could be assigned to this serum, as it exhibits very little mouse-protective activity against microorganisms of this type.

Cultures.—Group I–III strain No. 1027 and type II No. 963 were selected for the work after trial experiments with a number of strains. No. 1027 was received from Dr. C. Phillip Miller, designated as No. 21, and No. 963 from Dr. Geoffrey Rake, labeled "Herrington."

The virulence of the cultures has been maintained by frequent mouse passage as suggested by Rake (*5*, 1937) and, between passages, by transferring daily or twice daily on blood agar slants. The virulence of each is such that approximately two organisms suspended in mucin are lethal for a mouse.

Mice.—White mice bought on the open market were used. All protection tests have been carried out with mice weighing 17–20 grams. Larger mice were used for culture passage.

Precipitation in immune serum agar plates.—For the testing of unconcentrated serum 1.0, 0.5, and 0.2 cc of serum were added, respectively, to three tubes containing about 15 cc of melted hormone agar. The mixtures were poured into Petri dishes. Similar plates were prepared with the control serum. For concentrated serum an additional plate was prepared containing 0.1 cc of serum. Also, for weak immune sera, an additional plate was prepared containing 2.0 cc. Each plate was inoculated with cultures of the two strains selected for the protection tests, and with cultures of four other strains. The types I, II, and III were equally represented. The inoculum consisted of a mass of organisms about 2 mm in diameter taken from an 18-hour serum glucose agar culture, or a 5-hour blood agar culture. At the end of 48 and 72 hours of incubation, the plates were examined in a strong light against a dark background. Plate I illustrates halos of different intensity.

Mouse-protection test.—The protection tests were carried out by inoculating mice first with varying dilutions of serum and then one hour later with a constant dilution of culture. All injections were made intraperitoneally.

1. The sera were progressively diluted ×2 in Ringer's solution. At least three dilutions were used. The choice of dilutions was usually determined by the halo reactions as compared with those of M18. The amount of inoculum used was 0.5 cc.

2. Four- to five-hour blood agar cultures as suggested by Rake (*5*,1937) were used. The cultures were either the first subculture made from the peritoneal exudate of a mouse killed *in extremis* 16 hours after being inoculated with a large number of organisms, or the third or fifth twice-daily transfer of a mouse-passage culture. The culture was suspended in Ringer's solution, standardized to a density corresponding to 500 parts per million of silica and diluted 1:5, also in Ringer's solution. This dilution, designated as 10^{-1}, contained approximately 200,000,000 microorganisms per cc. (A suspension corresponding to 1,000 parts per million of silica was called the "undiluted" culture.) A 10^{-2} dilution was prepared in a suspension of mucin and from this the test dose of 10^{-3} was prepared in mucin. (In one instance a 5×10^{-4} dilution was employed.) Additional dilutions, 10^{-7}, 10^{-8} and 10^{-9}, were used to test the virulence of the culture. The 10^{-9} dilution, which contained approximately two microorganisms per cc, usually killed the majority of the mice inoculated. Each mouse was given an inoculum of 1 cc.

3. Five mice for each dilution of serum were usually employed. More would have been desirable.

4. Mice that survived for 72 hours were considered to be protected by the serum.

Analysis of the results of the mouse-protection test.—After attempting to evaluate the results of the mouse-protection tests by several methods, the so-called 50 percent end-point accumulation method of Muench (cited by Lloyd, Theiler, and Ricci (*12*)) was adopted. This method takes into account the fate of all mice irrespective of the amount of serum injected.

The Muench method has been used in the analysis of protection tests against yellow fever virus by Lloyd, Theiler, and Ricci (*12*), in titration of vaccine virus by Parker and Rivers (*13*), and in analysis of protection tests against pneumococcus by Goodner and Horsfall (*14*). Parker and Rivers have discussed the validity of the test.

The method of procedure is illustrated in table 1. For each dilution of serum, the survivals and deaths are separated. Then the survivals are accumulated, beginning with the highest dilution of serum, and the deaths beginning with the lowest dilution. The different sums in each accumulation column represent the number of survivals for that

dilution and higher dilutions, and the number of deaths for that dilution and lower dilutions. The percentages of all the survivals for each dilution are calculated. In this test 71 percent of the animals survived at 1:320 and 14 percent at 1:640. The desired 50 percent end-point would then be $^{2}/_{7}$ or 0.37 of the distance between 1:320 and 1:640. Since the serum dilutions are in geometrical progression, this point was obtained by multiplying the basic dilution number, 320, by the ratio of the dilutions, 2, raised to the power of 0.37 ($320 \times 2^{0.37}$, or the antilogarithm of log 320+0.37 log 2). This is equal to 414. The end-point could also be obtained by converting the factor 0.37 into a proportional factor by reference to a progressive chart.

TABLE 1.—*Mouse-protection test with determination of the 50 percent survival end-point by the accumulation method of Muench*

Dilution of serum	Result		Accumulation			Calculated 50 percent end-point
	Survived	Died	Survivals	Deaths	Survivals	
					Percent	
1:160	4	1	9	1	90	
1:320	4	1	5	2	71	1:414
1:640	1	4	1	6	14	
1:1280	0	5	0	11	0	

Estimation of the protective potency of a serum.—The procedure for the estimation of the protective potency of a polyvalent serum against group I–III and against type II meningococcus necessarily differed because of the difference in the amount of protective antibody against the respective serological types.

With group I–III meningococcus, mouse protection tests were made with the unknown serum on at least two different days. Each test included a titration of the control M18. The inclusion of the control in each test tended to overcome variable results which might have arisen from the number of microorganisms in different suspensions of culture, in susceptibility of different lots of mice, and in different preparations of mucin. From the results of the tests, the 50 percent survival end-point of each serum was calculated and the potency of the unknown serum was determined in relation to the control by proportional calculation. The final estimate of the protective potency was derived from the mean of the values obtained from the different tests of the serum. An illustration of the results obtained in the estimation of the potency of serum lot G is given in table 2.

In this table it is shown that the 50 percent survival end-points of lot G were 1:707 and 1:287 dilutions. These dilutions are very different, but the corresponding end-points of the control were equally different. Hence the ratio of the potency of lot G to that of the

control was in fairly close agreement in the respective tests. These were 82 and 70, with a mean of 76.

TABLE 2.—*Estimation of the mouse-protective potency of serum lot G with group I–III meningococcus*

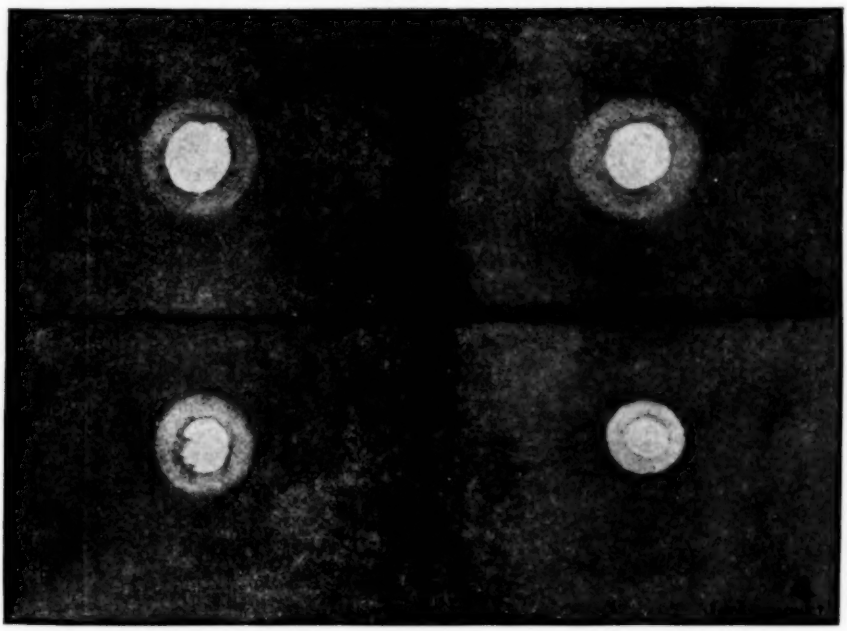
Test No.	Standard M18 serum							Lot G serum							Ratio of potency, M18 = 100
	Dilution	Results [1]		Accumulation [1]			Calculated 50 percent end-point	Dilution	Results [1]		Accumulation [1]			Calculated 50 percent end-point	
		S	D	S	D	S percent			S	D	S	D	S percent		
1	1:500	3	2	5	2	71	1:707	1:500	2	3	4	3	57	1:582	82
	1:1000	2	3	2	5	29		1:1000	2	3	2	6	25		
	1:2000	0	5	0	10	0		1:2000	0	5	0	11	0		
2	1:160	4	1	7	1	88	1:287	1:80	2	3	9	3	75	1:200	70
	1:320	2	3	3	4	43		1:160	3	2	7	5	58		
	1:640	1	4	1	8	13		1:320	2	3	4	8	33		
								1:640	2	3	2	11	15		
Mean ratio of mouse-protective potency of serum lot G															76

[1] S=Survived. D=Died.

Very few of the polyvalent sera, under the conditions of our testing, showed any protective action against type II meningococcus. The protection tests were carried out in a similar manner as with group I–III organisms, but it was necessary to use much larger amounts of serum. If the serum gave any protection, an estimate was made of the amount of the serum which would protect 50 percent of the mice. Its protective value could not be expressed in terms of M18, as this serum has exhibited practically no protective action against type II meningococcus. The results obtained with several sera are given in table 4.

Comparison of halos and mouse-protective potency.—During the past 15 months we have studied the precipitation reactions in immune serum agar plates of 138 different antimeningococcus sera. The degree of reaction determined by the intensity of the halo surrounding the colony has varied widely with different sera, and also with the serological type of the meningococcus used for testing. With group I–III meningococcus all of the sera gave a halo, in the majority of instances at least of moderate intensity; however, in a few instances the halos were very slight. On the other hand, with type II meningococcus the reverse was true; only a very few gave any halo at all, and it was always very slight except with one serum. With this serum it was of moderate intensity.

Representative examples of halos varying in intensity which were obtained with group I–III meningococcus are given in table 3. The reactions range from the very intense to the very slight. The most intense halos were obtained with sera C, D, and G, the first two of



A drawing of the precipitate around colonies of group I–III meningococcus on immune serum agar plates after 72 hours of incubation.

1. Plate contained 0.1 cc of immune serum. Halo intensity +.
2. Plate contained 0.2 cc of immune serum. Halo intensity ++.
3. Plate contained 0.5 cc of immune serum. Halo intensity +++.
4. Plate contained 1.0 cc of immune serum. Halo intensity ++++.

usually obtained with group I–III meningococcus. With the control, the halos were just visible, and no mouse that received less than 0.4 cc was protected. The halos of A were slightly greater, and the protection given was also slightly greater, but these differences are probably too small to be of significance. The concentrated serum C behaved as did a normal horse serum, giving no halo and no protection. The halos of the concentrated serum D, however, were more intense than we have observed with any other serum, and the protective action was also greater; yet it was estimated that a dose of 0.031 cc was necessary to protect 50 percent of the mice against the test dose of type II meningococcus.

TABLE 4.—*Halo reactions and mouse-protective potencies of 5 antimeningococcus sera determined with type II meningococcus*

Serum lot	Halo					Mouse protection [1]							Calculated 50 percent end-point
	Amount of serum in plate (cc)					Amount of serum							
	2.0	1.0	0.5	0.2	0.1	4:10	2:10	1:10	1:20	1:40	1:80	1:160	
M18	±	±	−	−	−	4S 1D	5D	5D	5D	5D	------	------	1:1.62=0.31cc
A	+±	+	tr.	−	−	3S 2D	2S 3D	4D	5D	5D	------	------	1:1.77=0.28cc
C	−	−	−	−	−	5D	5D	5D	5D	------	------	------	------
D	----	+++	++	±	−	------	------	3S 1D	4S 1D	2S 3D	1S 4D	5D	1:32=0.031cc
H	±	−	−	----	----	5D	5D	1S 4D	5D	5D	------	------	------
Normal	−	−	−	----	----	5D	5D	5D	------	------	------	------	------

[1] S=Survived. D=Died.

DISCUSSION

Although the observations presented in this paper represent an investigation which is as yet incomplete, sufficiently definite results have been obtained to warrant presentation. It has been shown that if a polyvalent antimeningococcus serum contained an appreciable amount of precipitins, demonstrable by the "plate" method, for a type-specific meningococcus, it also protected mice against organisms of the homologous type. On the other hand, if it contained no more than a trace of precipitins, it did not protect mice. With the majority of the sera tested, a definite correlation was found to exist between the intensity of the halo and the amount of serum required to protect mice. One serum, however, was found to produce halos more intense than the control, yet its protective activity was lower.

This lack of correlation may be analogous to the observation of Goodner and Horsfall (*14*) in work with antipneumococcus horse serum. They studied the ratio between the protective potency and the amount of specifically precipitable protein and found that the ratios fell into two groups; in one group the number of mouse protection units per mg of specifically precipitable protein was higher than in the other. Explanations for this lack of constancy are considered in two other papers by these authors (*15*).

In spite of the fact that the correlation between the amount of precipitation and the mouse-protective activity of an antimeningococcus serum was found to be inconstant with at least one serum, if no precipitins were demonstrable no mice were protected and if precipitins were demonstrable the serum was capable of protecting mice. It therefore appears that the presence of type-specific antibodies is necessary for the protection of mice against meningococcus, at least under the conditions specified in this paper.

The titration of the type-specific antibodies by the "plate" method is far from being exact; but by comparison with a control serum, fairly accurate comparative results may be obtained. In addition, the simplicity and speed of the test has many advantages. The method might be used advantageously in watching the development of type-specific antibodies during the course of immunization of an animal.

In passing we would like to call attention to the findings of Petrie (*9*), Maegraith (*10*), and Kirkbride and Cohen (*11*) that with immune serum-agar plates the change of a meningococcus from type-specific to non-type-specific (S to R) can be observed, and with homologous immune serum the serological type of a culture can be determined. We have found that typing by this method is always clear-cut, whereas by agglutination it is not always definite.

This study emphasizes the findings of others that the mouse-protective activity of polyvalent antimeningococcus serum is generally much less against type II than against group I–III meningococcus. If there is any relation between the mouse-protective activity or the type-specific antibodies and the therapeutic value of antimeningococcus serum, one is forced to question the value of certain sera in the treatment of patients suffering from type II infections. Furthermore, it becomes obvious that to evaluate the therapeutic use of antimeningococcus serum it is necessary to determine the type of the causative organism.

SUMMARY

In a study of a number of antimeningococcus sera it was found that, with the majority, a definite correlation existed between the type-specific precipitins as estimated by the "plate" method and the mouse-protective activity. In all instances if no precipitins were demonstrable, no mice were protected; and if precipitins were demonstrable, the serum was capable of protecting mice.

REFERENCES

(*1*) *a.* Branham, S. E., and Lillie, R. D.: Notes on experimental meningitis in rabbits. Pub. Health Rep., **47**: 1683 (1932); Observations on experimental meningitis in rabbits. *Ibid.*, 2137.

b. Branham, S. E., Lillie, R. D., and Pabst, A. M.: Experimental meningitis in guinea pigs. Pub. Health Rep., **52**: 1135 (1937).

c. Branham, S. E., and Pabst, A. M.: Serum studies in experimental meningitis. Pub. Health Rep., **52**: 1143 (1937).

(2) Branham, S. E.: Protection of mice against meningococcus infection by polyvalent antimeningococcic serum. Pub. Health Rep., **50:** 768 (1935).
(3) Miller, C. P.: Experimental meningococcal infection in mice. Science, **78:** 340 (1933).
(4) Miller, C. P.: A study of experimental meningococcal infection, effect of antibacterial immune serum. Proc. Soc. Exp. Biol. and Med., **32:** 1140 (1935).
(5) *a.* Rake, G.: Studies on meningococcus infection, the study of an isolated epidemic. J. Exp. Med., **61:** 545 (1935).
b. ————: A method for titrating the protective action of antimeningococcal serum. Proc. Soc. Exp. Biol. and Med., **32:** 1175 (1935).
c. ————: The mouse protection test in the standardization of antimeningococcus serum. Canad. Pub. Health J., **28:** 265 (1937).
(6) Cohen, S .M.: Study of virulence of meningococcus strains and of protective activity of antimeningococcus sera. J. Immunol., **30:** 203 (1936).
(7) Mishulow, L., and Melman, M.: A mouse protection test for standardizing antimeningococcus serums. J. Lab. and Clin. Med., **21:** 406 (1936).
(8) Miller, C. P., and Castles, R.: Experimental meningococcal infection in the mouse. J. Infect. Dis., **58:** 263 (1936).
(9) Petrie, G. F.: A specific precipitin reaction associated with the growth on agar plates of meningococcus, pneumococcus, and *B. dysenteriae* (Shiga). Brit. J. Exp. Path., **13:** 380 (1932).
(10) Maegraith, B. G.: Rough and smooth variants in stock culture of meningococci. Brit. J. Exp. Path., **14:** 227 (1933).
(11) Kirkbride, M. B., and Cohen, S. M.: Precipitation reactions of meningococcus strains with immune serum in agar plates in relation to antigenic activity. Am. J. Hyg., **20:** 444 (1934).
(12) Lloyd, W., Theiler, M., and Ricci, N. I.: Modification of the virulence of yellow fever virus by cultivation in tissues *in vitro*. Tr. Roy. Soc. Trop. Med. and Hyg., **29:** 481 (1936).
(13) Parker, R. F., and Rivers, T. M.: Immunological and chemical investigations of vaccine virus; statistical studies of elementary bodies in relation to infection and agglutination. J. Exp. Med., **64:** 439 (1936).
(14) Goodner, K., and Horsfall, F. L.: Properties of the type specific proteins of antipneumococcus sera, the mouse protective value of Type I sera with reference to the precipitin content. J. Exp. Med., **66:** 413 (1937).
(15) *a.* Goodner, K., and Horsfall, F. L.: Immunological fractionation of Type I antipneumococcus horse and rabbit sera. J. Exp. Med., **66:** 425 (1937).
b. ————: Immunochemical fractionation of Type I antipneumococcus horse and rabbit sera. *Ibid.*, **66:** 437 (1937).

STATE AND INSULAR HEALTH AUTHORITIES, 1938

DIRECTORY, WITH DATA AS TO APPROPRIATIONS AND PUBLICATIONS[1]

Directories of the State and insular health authorities of the United States for each year from 1912 to 1938 except 1932, have been published in the PUBLIC HEALTH REPORTS and reprinted as separates[2] for the information of health officers and others interested in public health activities. The present directory (1938), like those previously issued, has been compiled from information furnished by the respective State and insular health officers, and includes data as to appropriations and publications.

[1] Any errors or omissions discovered in this directory should be reported immediately to the Surgeon General, United States Public Health Service, Washington, D. C., in order that correction may be made in the reprint.

[2] Reprints nos. 83, 123, 190, 268, 344, 405, 488, 544, 605, 706, 775, 871, 949, 1043, 1106, 1188, 1254, 1334, 1425, 1522, 1604, 1675, 1724, 1779, and 1877, from the PUBLIC HEALTH REPORTS.

Where an officer has been reported to be a "whole-time" health officer, that fact is indicated by an asterisk (*). For this purpose a "whole-time" health officer is defined as "one who does not engage in the practice of medicine or in any other business but devotes all of his time to official duties."

ALABAMA DEPARTMENT OF PUBLIC HEALTH

Board of censors of the medical association of the State of Alabama, acting as a State committee of public health:
Bibb Graves, governor, ex officio chairman, Montgomery.
E. V. Caldwell, M. D., chairman, Huntsville.
M. Y. Dabney, M. D., Birmingham.
M. S. Davie, M. D., Dothan.
S. A. Gordon, M. D., Marion.
Fred W. Wilkerson, M. D., Montgomery.
J. D. Perdue, M. D., Mobile.
W. D. Partlow, M. D., Tuscaloosa.
Lloyd Noland, M. D., Fairfield.
K. A. Mayer, M. D., Lower Peach Tree.
T. Brannon Hubbard, M. D., Montgomery.
Bureau of administration:
Executive health officer:
***J. N. Baker, M. D., State health officer, Montgomery.**
*Bessie A. Tucker, secretary to State health officer, Montgomery.
*G. S. Savage, financial secretary, Montgomery.
Division of county organization:
*Douglas L. Cannon, M. D., director, Montgomery.
*J. S. Hough, M. D., field adviser in county organization, Montgomery.
*A. M. Shelamer, M. D., field adviser in county organization, Athens.
East Alabama health district:
*A. H. Graham, M. D., director and field adviser in county organization, Opelika.
*P. W. Auston, M. D., clinician, Opelika.
*Harry L. Mueller, M. D., pediatrician, Opelika.
*Sidney H. Morrow, D. D. S., Opelika.
*Velma Owen, R. N., Opelika.
*G. S. Christopher, B. S. in M. E., Opelika.
Division of public health education:
*John M. Gibson, director, Montgomery.
Bureau of communicable disease control:
*D. G. Gill, M. D., D. P. H., director, Montgomery.
Division of venereal disease control:
*W. H. Y. Smith, M. D., C. P. H., director, Montgomery.
Division of industrial hygiene:
*Wm. F. Queen, M. D., director, Montgomery.
Division of tuberculosis control:
*Holland Thompson, M. D., clinician, Montgomery.
*K. N. Joseph, M. D., clinician, Decatur.
*C. W. Westover, M. D., clinician, Anniston.
*Mary S. Pugh, R. N., X-ray technician, Montgomery.
*Mrs. Foster Teague, R. N., X-ray technician, Montgomery.
Bureau of hygiene and nursing:
*B. F. Austin, M. D., director, Montgomery.
Division of child hygiene:
*J. J. Repa, M. D., pediatrician, Montgomery.
Division of oral hygiene:
*Reuben T. Crawford, D. D. S., Montgomery.
*M. Martha Walters, B. S., B. A., Montgomery.
*Eva F. Dodge, M. D., obstetrician, Montgomery.
*Gladys Prestwood, R. N., Athens.
*Sarah Brooks Jones, R. N., Montgomery.
*Margaret Murphy, R. N., Montgomery.
*Mary Lee Parker, R. N., Montgomery.
Bureau of laboratories:
*Samuel R. Damon, Ph. D., general director, Montgomery.
Anniston branch:
*Mary Walker, Anniston.
Birmingham branch:
*George A. Denison, M. D., Birmingham.
Dothan branch:
*Anne George Irwin, Dothan.
Huntsville branch:
*Mrs. Buford Gatlin, Huntsville.
Mobile branch.
*C. H. Waite, Mobile.
Selma branch:
*Mrs. L. G. Johnson, Selma.
Tennessee Valley branch:
*C. C. Johnson, Decatur.
Tuscaloosa branch:
*Mrs. P. B. Mayfield, Tuscaloosa.
Bureau of sanitation:
*G. H. Hazlehurst, M. C., C. E., director, Montgomery.
Assistant engineers:
*T. H. Milford, B. S. in C. E., M. S. in San. E., Montgomery.
*A. N. Beck, B. S. in C. E., M. S. in San. E., Montgomery.
*R. V. Barnes, B. S. in C. E., M. S. in San. E., Montgomery.
*J. C. Clarke, B. S. in C. E., Montgomery.
*Frank B. Wood, B. S. in C. E., Montgomery.
*O. G. Quenelle, M. S. in M. E., Tuscumbia.
*C. W. White, B. S. in Min. E., Montgomery.
Division of inspection:
*C. A. Abele, Ch. E., director, Montgomery.
*H. J. Thrasher, Huntsville.
*F. H. Downs, B. S. in D. H., Montgomery.
*E. M. Yohn, Mobile.
*C. E. Fortenberry, B. S. in D. H., Montgomery.
Bureau of vital statistics:
*Leonard V. Phelps, S. B. in P. H., director, Montgomery.
Appropriation for fiscal year ending September 30, 1938.
Annual appropriation for all health work, including county organization, and exclusive of State subsidy to counties for maintenance of tuberculosis sanatoria, $430,000. (Subject to proration on basis of available revenue coming into the general fund.)

ALASKA DEPARTMENT OF HEALTH

Executive health officer:
Walter W. Council, M. D., commissioner of health, Juneau.
Assistant commissioners of health:
H. G. Romig, M. D., Anchorage.
Thomas Morcom, M. D., Nome.
Floyd B. Gillespie, M. D., Fairbanks.
Appropriation for 1937–39, $34,350.

ARIZONA STATE BOARD OF HEALTH

State board of health:
R. C. Stanford, Governor, president, Phoenix.
Joe Conway, vice president, Phoenix.
Coit I. Hughes, M. D., secretary, Phoenix.
Administrative office:
Coit I. Hughes, M. D., State superintendent of public health, State registrar of vital statistics.
*W. E. Harrell, auditor.
*Fred C. Ruppelius, statistician.

State laboratory:
*Robert A. Greene, director, Tucson.
*Marion Stroud, bacteriologist, Phoenix.

Division of sanitary engineering:
*F. C. Roberts, Jr.

Division of maternal and child health:
*Jack B. Eason, M. D.

Division of local health administration:
*J. D. Dunshee, M. D.

County health units:
*R. B. Durfee, M. D., director, Cochise County.
*G. F. Manning, M. D., director, Coconino County.
*L. H. Howard, M. D., director, Pima County.

Appropriations, year ending June 30, 1939:

Board of health	$17,824
Child hygiene	20,050
State laboratory	11,020

ARKANSAS STATE BOARD OF HEALTH

Board of health:
M. E. McCaskill, M. D., president, Little Rock.
F. O. Mahoney, M. D., El Dorado.
W. H. Hodges, M. D., Malvern.
Thomas Wilson, M. D., Wynne.
J. G. Gladden, M. D., Harrison.
E. D. McKnight, M. D., Brinkley.
L. D. Duncan, M. D., Waldron.

Executive health officer:
*Wm. B. Grayson, M. D., State health officer, Little Rock.

Bureau of vital statistics:
*Mrs. J. B. Collie, statistician, Little Rock.

Hygienic laboratory:
*H. V. Stewart, director, Little Rock.
*Mildred Moss, bacteriologist, Little Rock.
*R. E. Byrd, water chemist, Little Rock.
*John X. Blender, serologist, Little Rock.
*Nicole Baird, malariologist, Little Rock.

Bureau of sanitary engineering:
*F. L. McDonald, E. E., chief sanitary engineer, Little Rock.
*Walter A. Reinman, C. E., assistant engineer, Little Rock.
*James P. Slater, director, division of community sanitation.
*D. Webster Jones, B. S. A., director of milk control, Little Rock.

Bureau of local health service:
*T. T. Ross, M. D., M. P. H., assistant State health officer, director, Little Rock.
*W. Myers Smith, M. D., M. P. H., director, division of maternal and child health, Little Rock.
*Margaret S. Vaughan, R. N., supervisor of public health nursing, Little Rock.
*Mattie Neely, R. N., chief consultant nurse, division of maternal and child health, Little Rock.
*A. M. Washburn, M. D., M. P. H., director of communicable disease control, Little Rock.
*D. W. Fulmer, M. D., M. P. H., director, subdivision of malaria control, Little Rock.
*S. L. Davies, C. E., sanitary engineer, subdivision of malaria control, Little Rock.
*S. J. Carpenter, entomologist, subdivision of malaria control.
_____ _____ director, subdivision of tuberculosis control.
*Gale Morris, accountant.

Training center, Morrilton:
*W. P. Scarlett, M. D., M. P. H., director.
*Don W. Dykstra, M. D., assistant director.

Appropriation for biennial period ending June 30, 1939:

Executive salary and miscellaneous	$19,800
Bureau of vital statistics	34,200
Registrars' fees	31,000
Total	65,200
Bureau of sanitary engineering	18,600
Hygienic laboratory	19,940
Bureau of local health service	360,000

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

Board of public health:
Howard Morrow, M. D., president, San Francisco.
Edward M. Pallette, M. D., vice president, Los Angeles.
Walter M. Dickie, M. D., director of public health, Sacramento.
Roy A. Terry, M. D., Long Beach.
William R. P. Clark, M. D., San Francisco.
George H. Kress, M. D., Los Angeles.
Gustave Wilson, M. D., Sacramento.

Department of public health:
*Walter M. Dickie, M. D., director of public health, Sacramento.

Bureau of epidemiology:
*Harlin L. Wynns, M. D., chief, San Francisco.
*Ida May Stevens, supervising morbidity statistician.
*Gavin J. Telfer, M. D., epidemiologist, Los Angeles.

Bureau of sanitary inspections:
*Edward T. Ross, chief, Sacramento.

Bureau of vital statistics:
*Marie B. Stringer, chief, Sacramento.

Bureau of registration nurses:
*Helen F. Hansen, chief, Sacramento.

Bureau of tuberculosis:
*Edyth L. M. Tate-Thompson, chief, Sacramento.

Bureau of venereal diseases:
*Malcolm H. Merrill, M. D., chief, Sacramento.

Bureau of industrial hygiene:
*John P. Russell, M. D., C. P. H., chief, Sacramento.

Bureau of county health work:
*George M. Uhl, M. D., C. P. H., chief, Sacramento.

Bureau of food and drug inspections:
*M. P. Duffy, chief.

Division of laboratories:
*W. H. Kellogg, M. D., chief, Berkeley.

Bureau of sanitary engineering:
*C. G. Gillespie, C. E., chief, Berkeley.

Bureau of child hygiene:
*Ellen S. Stadtmuller, M. D., chief, San Francisco.

Division of public health nursing:
*Rena Haig, P. H. N., chief.

Bureau of cannery inspection:
M. P. Duffy, chief.

Appropriations available July 1, 1937, for biennial period ending June 30, 1939 (89th and 90th years):

Administration:	
For support, department of public health	$427,300
Bureau of cannery inspection:	
For support (payable from cannery-inspection funds)	336,320
Bureau of registration of nurses:	
For support (payable from nurses registration funds)	49,020
Bureau of food and drug inspection:	
Alcohol beverage control fund	60,000
Tuberculosis bureau:	
Allotment for support, included in item "For support, department of public health," $20,230.	
For subsidies	1,400,000
Total	2,272,640

Other sources of revenue:
Fees for registration of nurses, $10 each. (Fees for California graduate nurses, $5 only.)
Renewal of registration certificates, $1 each per year.
Licensing of cold-storage warehouses, rated according to capacity, for credit to general fund.
Fines for violation of pure food and drugs acts, for credit to general fund.
Fees for licenses, $50 each, and contributions, for credit to bureau of cannery inspection.
Fees for searches and certified copies of records, for credit to general fund.
Fees for inspection and registration of aviaries, $5 each.
Fees for inspection of clinics and dispensaries, $20 each.

Publications issued by health department:
Biennial report.
Weekly bulletin.
Special bulletins.
General health laws.

COLORADO STATE DIVISION OF PUBLIC HEALTH

State board of health:
Paul J. Connor, M. D., president, Denver.
William P. Gasser, M. D., vice president, Loveland.
R. L. Cleere, M. D., C. P. H., secretary and executive officer, Denver.
G. W. Bumpus, D. O., Denver.
N. M. Burnett, M. D., Lamar.
Ben Beshoar, M. D., Trinidad.
C. A. Davlin, M. D., Alamosa.
Frank Onufrock, Colorado Springs.
H. C. Dolph, D. D. S., Denver.
Division of administration:
*R. L. Cleere, M. D., C. P. H., secretary and executive officer, Denver.
Division of rural health work and epidemiology:
*James S. Cullyford, M. D., C. P. H., director.
Division of social hygiene:
*R. L. Cleere, M. D., C. P. H., secretary and executive officer, Denver.
Division of plumbing:
*Irving A. Fuller, chief inspector.
Division of bacteriology:
*W. C. Mitchell, M. D., bacteriologist.
Division of sanitary engineering:
*Benjamin V. Howe, sanitary engineer.
Division of vital statistics:
*Frank S. Morrison, LL. B., director.
Division of food and drugs:
*R. L. Cleere, M. D., C. P. H., acting commissioner.
Division of crippled children:
Jackson L. Sadler, M. D., acting director.
Division of maternal and child health:
Marie Wickert, acting director.
Division of public health nursing:
*Ruth E. Phillips, R. N., supervisor.
Appropriations for fiscal years ending June 30, 1938 and 1939:

	1938	1939
Salaries	$71,367	$71,547
Laboratory equipment and supplies	1,000	1,000
Printing	2,850	2,850
Traveling expenses	16,013	16,013
Venereal disease	5,500	5,500
Incidental	4,065	4,065
Physicians' and surgeons' fees and hospitalization	31,205	31,205
Total	132,000	132,180

CONNECTICUT DEPARTMENT OF HEALTH

Public health council:
C. E. A. Winslow, D. P. H.
James W. Knox.
James A. Newlands.
David R. Lyman, M. D.
Joseph M. Ganey, M. D.
Roscoe H. Suttie, C. E.
Executive health officer:
*Stanley H. Osborn, M. D., C. P. H., commissioner of health, Hartford.
Bureau of preventable diseases:
*Millard Knowlton, M. D., C. P. H., director.
Bureau of vital statistics:
*William C. Welling, director.
Bureau of public-health nursing.
*Hazel V. Dudley, R. N., director.
Bureau of child hygiene:
*Martha L. Clifford, M. D., director.
Bureau of public-health instruction:
*Elizabeth C. Nickerson, C. P. H.
Bureau of laboratories:
*F. Lee Mickle, director.
Bureau of sanitary engineering:
*Warren J. Scott, director.
Bureau of occupational diseases:
*Albert S. Gray, M. D., director.
Bureau of venereal diseases:
*Henry P. Talbot, M. D., M. P. H., director.
Bureau of mental hygiene:
*James M. Cunningham, M. D., director.
Division of mouth hygiene:
*Franklin M. Erlenbach, D. M. D., chief.
Division of medical registration:
*Ruth H. Monroe, chief.
Division of supplies:
*Lawrence A. Fagan, chief.
Division of local health administration:
*Franklin M. Foote, M. D., chief.
Division of crippled children:
*Russell V. Fuldner, M. D., acting chief.
Division of cancer research:
*Matthew H. Griswold, M. D., chief.
Appropriation for fiscal period ending June 30, 1939 (2 years), $717,209.
Publications issued by health department:
Weekly bulletin.
Monthly bulletin.
Annual vital-statistics report.
Annual report of State department of health.
Miscellaneous pamphlets.

DELAWARE STATE BOARD OF HEALTH

State board of health:
Stanley Worden, M. D., president, Dover.
Mrs. F. G. Tallman, vice president, Wilmington.
Mrs. Elizabeth H. Martin, secretary, Lewes.
R. E. Ellegood, M. D., Wilmington.
Mrs. Charles Warner, Wilmington.
John F. Maguire, D. D. S., Wilmington.
Bruce Barnes, M. D., Seaford.
M. I. Handy, M. D., Wilmington.
Executive health officer:
*Arthur C. Jost, M. D., C. M., executive secretary, Dover.
Director of laboratory:
*R. D. Herdman, Dover.
Director of communicable disease control:
*J. R. Beck, M. D., Dover.
Director of maternal and child health:
*Woodbridge E. Morris, M. D., Dover.
Sanitary engineer:
*R. C. Beckett, Dover.
Superintendent of Brandywine Sanatorium:
*L. D. Phillips, M. D., Marshallton.
Superintendent of Edgewood Sanatorium:
State supervisor of nurses:
*Mrs. Kathryn Trent, R. N., Dover.
State oral hygienist:
*Miss Margaret Jeffreys, R. D. H., Dover.
County unit officers:
*J. R. Downes, M. D., New Castle County.
*E. F. Smith, M. D., Kent County.
*F. I. Hudson, M. D., Sussex County.
Appropriations for each of the fiscal years ending June 30, 1938 and 1939:

General administration	$57,300
Hygiene laboratory	10,850
Edgewood Sanatorium for colored tuberculous patients	35,000
Brandywine Sanatorium for white tuberculous patients	167,000
Dental hygiene	12,000
Total	312,150
Special construction at Brandywine Sanatorium	25,000

Publications:
Annual report.
Bulletins on health subjects.
Weekly circular.
Quarterly Health News.

DISTRICT OF COLUMBIA HEALTH DEPARTMENT

Executive health officer:
*George C. Ruhland, M. D., health officer, Washington.
Assistant health officer:
Daniel L. Seckinger, M. D., Washington.
Chief clerk and deputy health officer:
*Arthur G. Cole, Washington.
Chief, Bureau of Preventable Diseases, and director, bacteriological laboratory:
*James G. Cumming, M. D., Washington.
Bacteriologist:
*John E. Noble, Washington.
Serologist:
*Jesse P. Porch, D. V. M., Washington.
Maternity welfare:
J. Bay Jacobs, M. D., medical director.
Bureau of Nursing:
Mrs. Josephine Pittman Prescott, director.
Bureau of tuberculosis:
*A. Barklie Coulter, M. D., director.
Chemist:
*John B. Reed, Washington.
Chief sanitary inspector:
*J. Frank Butts, Washington.
Director child-hygiene service:
*Hugh J. Davis, M. D., Washington.
Chief food inspector:
*Reid R. Ashworth, D. V. S., Washington.
Chief medical and sanitary inspector of schools:
*Joseph A. Murphy, M. D., Washington.
Chief, bureau of vital statistics:
*Joseph B. Irvine, Washington.
Director, bureau of maternal and child hygiene:
*Ella Oppenheimer, M. D.
Director, public health instruction:
*Melvin P. Isaminger, M. D.
Public health engineer consultant:
*Claud F. Browning, Washington.
Director, permit bureau.
*Richard F. Tobin, M. D., Washington.
Appropriations for the fiscal year ending June 30, 1938:

Salaries	$217,690
Prevention of cummunicable diseases	43,830
Milk and food inspection and regulation	7,000
Dispensary service, including treatment of tuberculosis and venereal diseases	45,380
Maintaining a child hygiene service	25,000
Hygiene and sanitation, public schools	111,060
Laboratory service	7,890
Nursing service	143,440
Tuberculosis sanatoria	541,440
Gallinger Hospital	743,660
Medical charities	155,000
Health Center	165,000
Miscellaneous	1,800
Total	2,208,190

Publications issued by health department:
Weekly report by health department.
Annual report of health officer.
Monthly statement of average grade of milk and ice cream sold.

FLORIDA STATE BOARD OF HEALTH

Board of health:
N. A. Baltzell, M. D., president, Marianna.
A. Wm. Morrison, Pharmacist.
Shaler Richardson, M. D., Jacksonville.
Executive health officer:
*W. A. McPhaul, M. D., State health officer, Jacksonville.
Diagnostic laboratories:
J. N. Patterson, M. D., director, Jacksonville.
Bureau of vital statistics:
*Edward M. L'Engle, M. D., director.
Bureau of sanitation:
*Fred A. Safay, director.
Division of public health nursing:
*Ruth E. Mettinger, R. N., director.
Division of drug inspection:
M. H. Doss, chief inspector, Jacksonville.
Bureau of maternal and child health:
Frank V. Chappell, M. D., director.
Bureau of county health work:
A. B. McCreary, M. D., director.
Bureau of epidemiology:
Dan N. Cone, M. D., director.
Division of public health engineering:
Geo. F. Catlett, C. E., director.
Division of dental health:
E. C. Geiger, D. D. S., director.
Division of tuberculosis control:
A. J. Logie, M. D., director.
Division of health education:
Elizabeth Bohnenberger, director.
Appropriation for health department:
One-half mill tax levied upon the assessable property of the State for the year ending June 30, 1936, and the same for the year ending June 30, 1937, but expenditures thereunder limited to $225,000 for each fiscal year.
Publications issued by health department:
Pamphlets covering all phases of public health.
Public health information disseminated through the weekly and daily papers of the State.
Florida health notes.
Annual reports.

GEORGIA DEPARTMENT OF PUBLIC HEALTH

State board of health:
Cleveland Thompson, M. D., Millen, First District.
C. K. Sharp, M. D., Arlington, Second District.
R. C. Ellis, Americus, Third District.
J. A. Corry, M. D., Barnesville, Fourth District.
R. F. Maddox, Atlanta, Fifth District.
A. R. Rozar, M. D., Macon, Sixth District.
M. M. McCord, M. D., Rome, Seventh District.
H. W. Clements, M. D., Adel, Eighth District.
L. C. Allen, M. D., Hoschton, Ninth District.
D. N. Thompson, M. D., Elberton, Tenth District.
M. D. Hodges, Ph. G., State at large, Marietta.
W. T. Edmunds, State at large, Augusta.
J. G. Williams, D. D. S., State at large, Atlanta.
Paul McGee, D. D. S., State at large, Waycross.
Executive health officer:
*T. F. Abercrombie, M. D., director, Atlanta.
*J. P. Bowdoin, M. D., assistant director.
Division of venereal disease control:
*Joe P. Bowdoin, M. D., chief, Atlanta.
Division of county health work:
*Guy G. Lunsford, M. D., chief, Atlanta.
Division of laboratories:
*T. F. Sellers, M. D., chief, Atlanta.
Division of sanitary engineering:
*L. M. Clarkson, chief, Atlanta.
Division of tuberculosis control:
*H. C. Schenck, M. D., chief, Atlanta.
Bureau of vital statistics:
*Butler Toombs, chief, Atlanta.
Division of child hygiene:
*Joe P. Bowdoin, M. D., chief, Atlanta.
Division of epidemiology:
*C. D. Bowdoin, M. D., chief.
Division of accounting and purchasing:
*C. L. Tinsley, chief, Atlanta.
Division of cancer control:
*J. W. Schereschewsky, chief.
Division of public health education:
*Miss Fannie B. Shaw, chief.
Division of public health nursing:
*Mrs. Abbie R. Weaver, chief.
Division of dental health education:
*Miss Annie Taylor, chief.
Division of malaria investigation:
*John M. Hendrickson, acting chief.
Appropriations for the fiscal years ending June 30, 1938, and June 30, 1939:
General appropriation, $500,000.
Scaled proportionately to State income.

TERRITORY OF HAWAII BOARD OF HEALTH

Board of health:
Clarence A. MacGregor, president, Honolulu.
S. B. Kemp, attorney general, Honolulu.
S. Clifton Culpepper, M. D., Honolulu.
W. H. Soper, Honolulu.
Edwin Lewis, Honolulu.
Frank E. Midkiff, Honolulu.
W. H. Wynn, M. D., Honolulu.

Executive health officer:
*F. E. Trotter, M. D., territorial commissioner of public health, Honolulu.
*Richard K. C. Lee, M. D., Deputy health officer, Honolulu.
Secretary:
*Florence S. Orr, Honolulu.
Health officer, Island of Hawaii:
*Joseph S. Caceres, Hilo
Health officer, Island of Kauai:
A. M. Ecklund, M. D., Koloa.
County health officer, Island of Maui:
———, Wailuku.
Tuberculosis bureau:
*C. Alvin Dougan, M. D., director, Honolulu.
Bureau of public health nursing:
*Mary Williams, director, Honolulu.
Bureau of communicable diseases:
*James R. Enright, M. D., director, Honolulu.
Bacteriologist, Island of Oahu:
*Alison W. Street, Honolulu.
Bacteriologist, Island of Hawaii:
*Alice May Wallmann, Hilo.
Bacteriologist, Island of Maui:
Haliburton McCoy, M. D., Puunene.
Bacteriologist, Island of Kauai:
A. M. Ecklund, M. D., Koloa.
Bacteriologist, Island of Molokai:
Stanley Sakai, Kaunakakai.
Bureau of maternal and infant hygiene:
Frederick K Lam, M. D., director, Honolulu.
Bureau of sanitation:
*S. W. Tay, director, Honolulu.
*Fred Schultz, division supervisor, Honolulu.
*Clifford H. Bowman, division supervisor, Island of Hawaii, Hilo.
*George Y. Zane, division supervisor, Island of Maui, Wailuku (acting).
*A. P. Christian, division supervisor, Island of Kauai, Lihue.
*Robert B. Pauole, sanitary inspector, Leeward Molokai, Kaunakakai.
Bureau of vital statistics:
*Miss M. H. Lemon, registrar, general, Honolulu.
Bureau of pure food and drugs:
*M. B. Bairos, director, Honolulu.
Territorial hospital:
———, ———,
*E. A. Stephens, M. D., medical director, Kaneohe, Oahu.
Services for crippled children:
*Richard K. C. Lee, M. D., director, Honolulu.

Appropriations, biennium 1937-39:

Board of health—general administration:	
Personal services	$58,518
Other current expenses	7,500
Equipment	3,750
	69,768
Bureau of vital statistics:	
Personal services	25,018
Other current expenses	7,500
Equipment	750
	33,268
Tuberculosis bureau:	
Personal services	23,089
Other current expenses	10,000
Equipment	300
	33,389
Tuberculosis—private hospitals:	
Appropriation made by 1937 legislature direct to institutions. Funds no longer under control of board of health.	
Bureau of public health nursing:	
Personal services	206,777
Other current expenses	35,500
Equipment	10,450
	252,727

Appropriations, biennium 1937-39—Continued.

Plague campaign:	
Personal services	$74,610
Other current expenses	31,000
Equipment	8,091
Structures and permanent improvements to land	9,000
	122,701
Bureau of communicable diseases:	
Personal services	39,185
Other current expenses	24,000
Equipment	2,532
	65,717
Bureau of maternal and infant hygiene:	
Personal services	11,600
Other current expenses	22,550
Equipment	150
	34,300
Bureau of pure food and drugs:	
Personal services	18,534
Other current expenses	2,100
Equipment	1,000
	21,634
Board of examiners:	
Personal services	240
Other current expenses	300
	540
Bureau of sanitation:	
Personal services	139,727
Other current expenses	18,838
Equipment	11,800
	170,365
Government physicians:	
Personal services	86,403
Other current expenses	7,500
	93,903
Territorial hospital (insane):	
Personal services	498,805
Other current expenses	270,960
Equipment	24,895
Structures and permanent improvements to land	1,300
	795,930
Total	1,694,272

Special funds, biennium 1937-39:
Services for crippled children: $50,000. (Funds transferred from unemployment relief tax fund.)

IDAHO DEPARTMENT OF PUBLIC WELFARE, DIVISION OF PUBLIC HEALTH

Executive health officer:
*H. L. McMartin, M. D., director, division of public health, Boise.
*Samuel W. Weissross, M. D., M. P. H., assistant director.
Division of local health administration:
*L. C. Krotcher, M. D., director.
*Kathryn McCabe, R. N., P. H. N., supervising nurse.
Division of maternal and child health and crippled children:
*H. L. McMartin, M. D., director.
*Gladys Bell, assistant director.

Division of sanitary engineering and chemistry:
*W. V. Leonard, M. E., director.
*James M. Welsh, sanitary inspector.
*C. H. Watson, sanitary inspector.
Division of bacteriological and hygienic laboratories:
*L. J. Peterson, director.
*A. W. Klotz, assistant director.
*H. C. Clare, laboratory technician.
*Paul C. Ward, C. E., field technician.
Division of vital statistics:
*Pearl Dillingham, registrar.
Appropriation for biennial period ending Dec. 31, 1938:

Salaries of regular officers and employees	$41,328
Wages to extra help	400
Expert and special	1,200
	42,928
Services other than personal	18,000
Supplies	5,780
Equipment	800
Rents, fixed charges	3,424
	28,004
Total for salaries and wages and all other expenses	70,932
Special appropriation—industrial hygiene	5,000

Appropriation for hospitalization of tuberculosis patients:

Fixed charges	51,400
Personal services	3,600
	55,000

Special grant from other sources of revenue in the State for crippled children (special grant for fiscal year ending June 30, 1938) 24,000
Other sources of revenue:
Aid through Social Security for public health work, maternal and child health, and crippled children.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Board of public health advisors:
Clifford U. Collins, M. D., chairman.
E. J. Doering, M. D.
Samuel E. Munson, M. D.
Maurice Rubel, M. D.
Executive health officer:
*A. C. Baxter, M. D., acting director of public health, Springfield.
Assistant director of public health:
*A. C Baxter, M. D.
Division of sanitary engineering:
*Clarence W. Klassen, C. E., chief sanitary engineer.
Division of communicable diseases:
*J. J. McShane, M. D., D. P. H., chief.
Division of child hygiene and public-health nursing:
*Grace S. Wightman, M. D., chief.
Division of tuberculosis:
*A. C. Baxter, M. D., acting chief.
Division of laboratories:
*Herbert E. McDaniels, Ph. D., acting chief.
Division of vital statistics:
*R. E. Woodruff, M. D., acting registrar.
Division of public-health instruction:
*Baxter K. Richardson, chief.
Division of hotel and lodging-house inspection:
*Michael J. Costello, superintendent.
Division of dental health education:
Charles F. Deatherage, D. D. S., chief.
Division of industrial hygiene:
Milton H. Kronenberg, M. D., chief.
Appropriations for biennial period ending June 30, 1939:

	Approximate
Salaries	$858,840
Salaries State officers	27,800
Office expenses	26,202
Traveling expenses	149,600
Operation	440,000
Repairs and equipment	40,032
Contingent	65,000
Printing	60,000
Postage	$28,000
Sanitary water-board law	30,000
Emergency	25,000
Slum area	40,000
Prenuptial laboratory tests	50,000
Total	1,840,474

Publications issued by health department:
Illinois Health Messenger (biweekly).
Weekly statistical bulletin for health officers.
Quarterlies on sanitation of water, milk, swimming pools, sewage disposal.
Newspaper releases and manuscript of radio broadcasts.
Educational health circulars.

INDIANA DEPARTMENT OF COMMERCE AND INDUSTRIES, STATE BOARD OF HEALTH

Board of health:
Edmund Van Buskirk, M. D., president, Fort Wayne.
J. C. Glackman, M. D., Rockport.
Ernest Rupel, M. D., Indianapolis.
William Wise, M. D., Indianapolis.
Verne K. Harvey, M. D., secretary, Indianapolis.
Executive health officer:
*Verne K. Harvey, M. D., C. P. H., director, Indianapolis.
Bureau of physical and health education:
Thurman B. Rice, M. D., chief, Indianapolis.
Bureau of maternal and child health:
Howard B. Mettel, M. D., chief, Indianapolis.
Bacteriological laboratories:
Clyde G. Culbertson, M. D., chief, Indianapolis.
Bureau of local health administration:
*John W. Ferree, M. D., chief, Indianapolis.
Epidemiologist:
*J. W. Jackson, M. D., Indianapolis.
Bureau of public health nursing:
*Eva F. MacDougall, R. N., chief, Indianapolis.
Bureau of food and drugs:
*Harold V. Darnell, Ph. C., chief, Indianapolis.
Bureau of sanitary engineering:
*B. A. Poole, chief engineer, Indianapolis.
Bureau of weights and measures:
*Rollin E. Meek, chief, Indianapolis.
Bureau of dairy products:
*John Taylor, chief, Indianapolis.
Bureau of vital statistics:
*H. M. Wright, chief, Indianapolis.
State investigator:
*Leo J. Rail, Indianapolis.
Auditor:
*D. S. McCready, Indianapolis.
Appropriation for fiscal year beginning July 1, 1937, and ending June 30, 1938, $238,500.

IOWA STATE DEPARTMENT OF HEALTH

EX OFFICIO

Nelson G. Kraschel, Governor, Des Moines.
Robert E. O'Brian, secretary of State, Des Moines.
Leo. J. Wegman, treasurer of State, Des Moines.
Thomas Curran, secretary of agriculture, Des Moines.
Walter L. Bierring, M. D., State commissioner of health, Des Moines.

APPOINTIVE BY GOVERNOR

Edward M. Myers, M. D., chairman, Boone.
Herbert E. Story, M. D., secretary, Osceola.
W. J. Connell, Hawkeye.
Walter A. Sternberg, M. D., Mount Pleasant.
Erwin J. Gottsch, M. D., Shenandoah.
Executive health officer:
*Walter L. Bierring, M. D., commissioner of health, Des Moines.
*M. F. Haygood, M. D., director of local health services, Des Moines.
Division of communicable diseases:
Carl F. Jordan, M. D., director.
Paul Stephens, M. D., assistant director.

Tuberculosis control:
Charles K. McCarthy, M. D., director.
Venereal disease control:
James P. Sharon, M. D., associate director.
Division of child health and health education:
John H. Hayek, M. D., acting director.
Division of sanitation, public health engineering and industrial hygiene:
A. H. Wieters, general director.
Paul J. Houser, director, Industrial hygiene.
State hygienic laboratories:
*M. E. Barnes, M. D., director, Iowa City.
Division of public health nursing:
*Edith S. Countryman, R. N., director, Des Moines.
Division of Vital Statistics:
_____, _____.
Division of licensure and registration:
*H. W. Grefe, director, Des Moines.
Division of law enforcement:
*Herman B. Carlson, director, Des Moines.
Division of barber inspection:
*William B. Wilson, director, Des Moines.
Division of cosmetology inspection:
*Helen Blake, executive secretary, Des Moines.
Housing work is carried on by engineering division.
Medical, dental, optometry, cosmetology, chiropractic, osteopathy, embalming, podiatry, and barber examining boards are combined in the State department of health.
Executive secretary:
Albert F. Vogt, Des Moines.
Appropriations for fiscal year ending June 30, 1938:

Central administration	$24,570
Public health nursing division	4,950
Child health and health education	6,300
Preventable diseases (general)	5,820
Preventable diseases (venereal disease control)	40,000
Vital statistics	7,600
Public health engineering	18,800
Licensure and registration	7,540
	115,580
Examining boards: Medical, dental, osteopathic, chiropractic, embalmers, optometry, cosmetology, and barbers	39,960
	155,540

KANSAS STATE BOARD OF HEALTH

Board of health:
George I. Thacher, M. D., president, Waterville.
H. L. Aldrich, M. D., Caney.
W. C. Lathrop, M. D., Norton.
A. B. Mitchell, LL.B., Lawrence.
A. J. Rettenmaier, M. D., Kansas City.
W. J. Eilerts, M. D., Wichita.
J. L. Lattimore, M. D., Topeka.
Alfred O'Donnell, M. D., Ellsworth.
Jos. W. Spearing, M. D., Cimarron.
R. T. Nichols, M. D., Hiawatha.
Executive health officer:
*F. P. Helm, M. D., secretary and executive health officer, Topeka.
Division of vital statistics:
*V. L. Bauersfeld, D. D. S., acting state registrar, Topeka.
*Minnie Fleming, assistant State registrar.
Division of preventable diseases:
E. K. Musson, M. D.
*C. H. Kinnaman, M. D., epidemiologist, Topeka.
*R. H. Riedel, M. D., venereal diseases, Topeka.
*Clifton F. Hall, M. D., tuberculosis, Topeka.
Division of food and drugs:
*Thos. I. Dalton, Ph. C., assistant chief food and drug inspector, Topeka.
Division of child hygiene:
*H. R. Ross, M. D., director, Topeka.
R. F. Boyd, M. D., assistant director.
Division of sanitation:
Earnest Boyce, chief engineer, Lawrence.
Division of dental hygiene:
*L. R. Kramer, D. D. S., director, Topeka.
Division of public health education:
*F. P. Helm, M. D., director, Topeka.
*Bertha H. Campbell, assistant director.
Public health nursing:
*Mary McAuliffe, supervisor.
Water and sewage laboratories at Kansas University:
Earnest Boyce, director.
Food laboratory at Kansas University:
H. P. Cady, Ph. D., director.
Drug laboratory at Kansas University:
L. D. Havenhill, Ph. D., director of drug analysis, Lawrence.
Food laboratory at Kansas Agricultural College:
H. H. King, Ph. D., director of food analysis, Manhattan.
Public health laboratory, Topeka:
*Chas. A. Hunter, Ph. D., director, Topeka.
Appropriations for year ending June 30, 1938:

Executive	$5,020
Division of communicable diseases	13,304
Division of food and drugs	11,700
Division of child hygiene	8,470
Division of research and investigation work	6,000
Public health laboratory	10,000
Division of sanitation	3,000
Board members	1,000
Total	58,494

Other sources of revenue:
Marriage fees, approximately $21,097.
Water and ice analyses fees, approximately $14,000.
Publications issued by health department:
Biennial report.
Weekly morbidity report.
News letter.

KENTUCKY STATE DEPARTMENT OF HEALTH

Department of health:
E. M. Howard, M. D., president, Harlan.
George S. Coon, M. D., Louisville.
A. T. McCormack, M. D., secretary, Louisville.
J. Watts Stovall, M. D., Grayson.
John H. Blackburn, M. D., Bowling Green.
W. H. Fuller, M. D., Mayfield.
E. L. Gates, M. D., Greenville.
C. J. Johnson, D. O., Louisville.
C. B. Davis, Louisville.
Executive officer:
*A. T. McCormack, M. D., D. P. H., State health commissioner, Louisville.
Bureau of county health work:
*P. E. Blackerby, M. D., assistant State health commissioner, Louisville.
*V. A. Stilley, M. D., field director, Benton.
*W. F. Lamb, M. D., field director, Russellville.
*D. A. Reekie, M. D., field director, Louisville.
*Juanita Jennings, M. D., field director, Louisville.
Bureau of vital statistics:
*J. F. Blackerby, director, Louisville.
Bureau of bacteriology:
*Lillian H. South, M. D., director, Louisville.
Bureau of sanitary engineering:
*F. C. Dugan, C. E., director, Louisville.
Bureau of foods, drugs, and hotels:
*Sarah Vance Dugan, director, Louisville.
Bureau of venereal diseases:
E. C. Drescher, M. D.
Bureau of public health nursing:
*Margaret L. East, R. N., director, Louisville.
Bureau of maternal and child health:
*C. B. Crittenden, M. D., acting director, Louisville.
Bureau of prevention of trachoma and blindness:
Trachoma Hospital:
*Robert Sory, M. D., medical officer in charge.
Bureau of budget:
*Elva V. Grant, director, Louisville.
Bureau of epidemiology:
*F. W. Caudill, M. D., director, Louisville.
Bureau of tuberculosis:
*John B. Floyd, M. D., director, Louisville.
State tuberculosis sanatorium:
*Paul A. Turner, M. D., director and superintendent, Louisville.
Bureau of dental health:
J. F. Owen, D. D. S., director, Lexington.

Bureau of public health education:
*John W. Kelly, director.
*Mayme Sullivan, chief clerk.
Bureau of medical registration:
*John G. South, M. D., director, Louisville.

Appropriations for fiscal years 1937-38 and 1938-39:

	1937-38	1938-39
State department of health	$150,000	$150,000
Laboratories	5,000	5,000
Prevention of blindness	2,500	2,500
County health departments	194,500	244,500
County health relief fund	25,000	
State tuberculosis sanatorium	56,000	44,000
Total	433,000	446,000

LOUISIANA DEPARTMENT OF HEALTH

State board of health:
J. A. O'Hara, M. D., president, New Orleans.
S. E. Graham, M. D., Melville.
S. J. Couvillon, M. D., Moreauville.
Jas. C. Sartor, M. D., Rayville.
(Other members to be appointed.)
Fannie B. Nelken, secretary.
Executive health officer:
*J. A. O'Hara, M. D., president, State board of health, New Orleans.
Bacteriologist:
*W. H. Seemann, M. D., New Orleans.
Registrar of vital statistics:
*P. A. Kibbe, M. D., New Orleans.
Bureau of communicable diseases:
C. L. Brown, M. D., New Orleans.
Bureau of public health administration:
*R. W. Todd, M. D., director, New Orleans.
Sanitary engineer:
*John H. O'Neill, New Orleans.
Analyst:
*Cassius L. Clay, New Orleans.
Sanitary inspection:
*Peter Rohrs, Jr., chief, New Orleans.
Auditor:
*Phil Arras, New Orleans.
Appropriations for fiscal years:
1936-37 $430,000
1937-38 430,000
Publications issued by health department:
Quarterly bulletin.
Biennial report.
Miscellaneous leaflets.

MAINE DEPARTMENT OF HEALTH AND WELFARE

Advisory council of health and welfare:
Miss Sally P. Moses, Bangor.
George W. Lane, Jr., Auburn.
Mrs. Helen C. Donahue, Portland.
E. V. Call, M. D., Lewiston.
Irving E. Pendleton, D. M. D., Lewiston.
Bureau of health:
*George H. Coombs, M. D., director, Augusta.
*Roscoe L. Mitchell, M. D., deputy director, Augusta.
Division of administration:
*George H. Coombs, M. D., director, Augusta.
Division of communicable diseases:
*Roscoe L. Mitchell, M. D., Augusta.
Division of laboratories:
*A. H. Morrell, M. D., Augusta.
Aroostook county branch laboratory:
C. S. Kingsley.
Division of sanitary engineering:
*Elmer W. Campbell, D. P. H., Augusta.
Division of vital statistics:
*George H. Coombs, M. D., State registrar, Augusta.
Division of social hygiene:
*Roscoe L. Mitchell, M. D., Augusta.
Benjamin B. Foster, M. D., consultant, Portland.
Harrison J. Hunt, M. D., consultant, Bangor.
Division of public health nursing and child hygiene:
*Edith L. Soule, R. N., director, Augusta.
*Helen N. Kienzle, R. N., assistant director, Augusta.
Division of dental hygiene:
*Dorothy Bryant, D. H., Augusta.
Division of crippled children:
*Herbert R. Kobes, M. D., Augusta.
Division of maternal and child health:
*Roscoe L. Mitchell, M. D., acting director, Augusta.
Health unions:
Cooperative health union:
B. L. Arms, M. D., Farmington.
Motboy health union (Milford, Old Town, Bradley, Orono, Veazie):
Howard L. Jackson, M. D., Old Town.
District health officers:
*J. L. Pepper, M. D., South Portland.
*C. N. Stanhope, M. D., Dover-Foxcroft.
*J. W. Loughlin, M. D., Rockland.
*B. F. Porter, M. D., Caribou.
*J. A. MacDonald, M. D., Machias.

Appropriations for fiscal year ending June 30, 1938:

Administration	$60,500
District and local health officers	27,500
Venereal disease control work	11,300
Maternity and child-welfare work	26,000
Branch State laboratory, Caribou	3,400
Aid for typhoid carriers	5,300
Infantile paralysis control	2,000
Pneumonia control	4,000
Total	140,000

Other sources of revenue:
Census Bureau, Washington, D. C., and miscellaneous receipts, about $2,000.
License fees for camps, eating and lodging places, etc., about $34,000 (estimated).

MARYLAND DEPARTMENT OF HEALTH

Board of health:
Robert H. Riley, M. D., Dr. P. H., chairman, Baltimore.
Thomas S. Cullen, M. D., Baltimore.
Herbert R. O'Conor, attorney general, Baltimore.
Joseph Irwin France, M. D., Port Deposit.
Huntington Williams, M. D., Dr. P. H., Baltimore.
Frederick A. Allner, C. E. Baltimore.
Benjamin C. Perry, M. D., Bethesda.
E. F. Kelly, Phar. D., Baltimore.
George M. Anderson, D. D. S., Baltimore.
Executive health officer:
*Robert H. Riley, M. D., Dr. P. H., director of health, Baltimore.
Division of personnel and accounts:
*Walter N. Kirkman, chief, Baltimore.
Division of oral hygiene:
*Richard C. Leonard, D. D. S., chief, Baltimore.
Division of legal administration:
*J. Davis Donovan, LL. B., chief, Baltimore.
Committee on public health education:
*Gertrude B. Knipp, secretary, Baltimore.
Bureau of communicable diseases:
*Robert H. Riley, M. D., Dr. P. H., chief, Baltimore.
*C. H. Halliday, M. D., epidemiologist, Baltimore.
*C. W. G. Rohrer, M. D., Ph. D., diagnostician, Baltimore.
Bureau of vital statistics:
*Arthur W. Hedrich, chief, Baltimore.
Food and drug commissioner:
*A. L. Sullivan, chief, Baltimore.
Deputy food and drug commissioner:
*R. L. Swain, Phar. D., LL. B.
Bureau of bacteriology:
*C. A. Perry, chief, Baltimore.
Bureau of sanitary engineering:
*Abel Wolman, B. S. E., chief, Baltimore.
Bureau of chemistry:
*William F. Reindollar, chief, Baltimore.
Bureau of child hygiene:
*J. H. Mason Knox, Jr., Ph. D., M. D., chief, Baltimore.

Appropriations for fiscal year ending September 30, 1939, $469,173.75.
Publications issued by health department:
Annual report.
Weekly News Letter.
Monthly bulletin.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Public health council:
Henry D. Chadwick, M. D., chairman, Boston.
Richard M. Smith, M. D., Boston.
Francis H. Lally, M. D., Milford.
Richard P. Strong, M. D., Boston.
Charles F. Lynch, M. D., Springfield.
James L. Tighe, Holyoke.
George D. Dalton, M. D., Quincy.
Executive health officer:
*Henry D. Chadwick, M. D., State commissioner of public health, Boston.
Secretary:
*Florence L. Wall.
Division of administration:
(Under direction of commissioner.)
Division of communicable diseases:
*Roy F. Feemster, M. D., director, Boston.
Division of sanitary engineering:
*Arthur D. Weston, C. E., director and chief engineer, Boston.
Division of biologic laboratories:
*Elliott S. Robinson, M. D., director and pathologist, Boston.
Division of food and drugs:
*Hermann C. Lythgoe, director and analyst, Boston.
Division of child hygiene:
*M. Luise Diez, M. D., director, Boston.
Division of tuberculosis sanatoria:
*Alton S. Pope, M. D., director, Boston.
Division of adult hygiene:
*Herbert L. Lombard, M. D., director, Boston.
Division of genitoinfectious diseases:
*Nels A. Nelson, M. D., director, Boston.
Appropriations for department of public health, 1938:

Division of administration:	
Salary of commissioner	$7,500
Personal services	20,200
Services other than personal	9,500
Division of child and maternal hygiene:	
Personal services of director and assistants	64,800
Services other than personal	25,000
Division of communicable diseases:	
Personal services of director, district health officers, etc	74,400
Services other than personal	15,000
Hospitalization chronic rheumatism	36,500
Division of genitoinfectious diseases:	
Personal services	17,392
Expenses in connection with control of genitoinfectious diseases	229,000
Wassermann Laboratory:	
For personal services	19,000
For expenses of laboratory	6,000
Antitoxin and vaccine laboratory:	
For personal services	79,350
Other services	34,400
Inspection of food and drugs:	
For personal services	63,000
Other services	12,500
For administering the shellfish law:	
Personal services	2,340
Other services	870
Water supply and disposal of sewage:	
For personal services	132,300
For other services	27,300
Division of tuberculosis:	
For personal services	41,340
Services other than personal	4,000
For personal services of tuberculosis clinic units	36,840
Services other than personal (clinic units)	14,700
Payment of subsidies	480,000
Division of tuberculosis—Continued.	
For maintenance of and for certain improvements at the Lakeville, North Reading, Rutland, and Westfield State sanatoria	$1,444,895
Division of adult hygiene:	
For personal services	46,900
For other expenses	49,500
Cancer hospital at Norfolk:	
For maintenance of and for certain improvements	361,400

MICHIGAN DEPARTMENT OF HEALTH

Advisory council of health:
H. Lee Simpson, M. D., Detroit.
W. Lloyd Kemp, M. D., Birmingham.
R. B. Harkness, M. D., Hastings.
George J. Curry, M. D., Flint.
U. G. Rickert, D. D. S., Ann Arbor.
Executive health officer:
*Don W. Gudakunst, M. D., Dr. P. H., State health commissioner, Lansing.
Bureau of engineering:
*Edward D. Rich, C. E., director.
*Willard F. Shepard, assistant engineer.
*Raymond J. Faust, C. E., assistant engineer.
*Orla E. McGuire, assistant engineer.
*LaRue L. Miller, assistant engineer.
*Robert J. Smith, assistant engineer.
*John E. Miller, assistant engineer.
Bureau of maternal and child health:
*Lillian R. Smith, M. D., director.
*G. B. Cornelluson, M. D., associate director.
*Emily L. Ripka, M. D., field physician.
*Berneta Block, M. D., field physician.
*Mabel G. Munro, R. N., chief nurse, division of public health nursing.
Bureau of records and statistics:
*W. J. V. Deacon, M. D., director.
*Stuart T. Friant, statistician.
Bureau of education:
*Marjorie Delavan, director.
*Pearl Turner, commercial artist.
Alice Montgomery, consultant in school health education.
*Wilbur J. Myers, in charge of publications.
———, librarian.
*Melita Hutzel, lecturer.
Bureau of communicable diseases:
*Filip Forsbeck, M. D., director.
*Arthur Newitt, M. D., C. P. H., physician in charge, tuberculosis control division.
*Russell E. Pleune, M. D., M. P. H., physician in charge, venereal disease control division.
*Richard Sears, M. D., field epidemiologist.
Bureau of mouth hygiene:
*William R. Davis, D. D. S., director.
*Ronald B. Fox, D. D. S., assistant.
*Ruth F. Rogers, D. H., assistant.
Bureau of county health administration:
*A. B. Mitchell, M. D., director.
Bureau of laboratories:
*C. C. Young, Ph. D., D. P. H., director.
*Minna Crooks, associate director.
*G. D. Cummings, Ph. D., associate director, service division.
*Pearl L. Kendrick, associate director, Western Michigan Division.
*Ora M. Mills, associate director, Upper Peninsula division.
*W. E. Bunney, Ph. D., associate director, biologic products division.
*J. T. Tripp, Ph. D., assistant director and senior immunologist.
*C. B. Line, D. V. M., assistant director and senior veterinary pathologist.
*Janet M. Bourn, Ph. D., senior bacteriologist.
*W. F. Ferguson, senior bacteriologist.
*A. Exworthy, senior chemist and water analyst.
*A. B. Haw, senior chemist.
*M. B. Kurtz, D. V. M., senior serologist.
*R. Y. Gottschall, Ph. D., senior bacteriologist.
*D. B. Meyer, D. V. M., veterinary pathologist.
*Frithjof Setter, Ph. D., immunologist.
*G. F. Forster, Ph. D., senior bacteriologist.
*M. M. Woodward, toxicologist.

Bureau of industrial hygiene:
*John M. Hepler, C. E., director.
*Paul F. Rezin, chemical engineer.
*Richard W. Colina, sanitary engineer.
*Earl R. Zuehlke, chemist.
Appropriations for fiscal year ending June 30, 1939:

Commissioner	$6,000
Other personal service	124,000
Supplies, material, and contractual service	55,000
Outlay for equipment	4,000
County health units	129,000
Beaver Island physician	2,800
Venereal disease control	50,000
Total	370,800

Laboratory:

Personal service	130,000
Supplies, material and contractual service	60,000
Outlay for equipment	3,000
Smallpox vaccine, toxoid manufacture	5,000
Antipneumococcus serum	50,000
Lands and structures	5,000
Total	253,000

Publications issued by health department:
Monthly bulletin.
Annual report.
Communicable-disease pamphlets.
Sex-hygiene pamphlets.
Child-hygiene pamphlets.
Engineering bulletins.
Mouth-hygiene pamphlets.
Rules and regulations.

MINNESOTA DEPARTMENT OF HEALTH

Board of health:
Frederic Bass, C. E., president, Minneapolis.
Gustav Bachman, Ph.D., Minneapolis.
N. G. Mortensen, M. D., St. Paul.
S. Z. Kerlan, M. D., Aitkin.
E. T. Fitzgerald, M. D., Morris.
Thomas G. Bell, Duluth.
Erling S. Platou, M. D., Minneapolis.
John Indihar, D. D. S., Chisholm.
W. A. Brand, M. D., Redwood Falls.
Executive health officer, State Office Bldg., St. Paul.
*A. J. Chesley, M. D., secretary and executive officer.
Division of administration, State Office Bldg., St. Paul:
*O. C. Pierson, director.
Division of vital statistics, State Office Bldg., St. Paul:
*Gerda C. Pierson, director.
Division of hotel inspection, State Office Bldg., St. Paul:
*Laura E. Naplin, State hotel inspector.
Division of preventable diseases (including venereal diseases), University Campus, Minneapolis:
*O. McDaniel, M. D., director.
*Lucy Heathman, Ph. D., M. D., assistant director, and chief of laboratories.
*Ralph R. Sullivan, M. D., senior epidemiologist.
Division of sanitation, University Campus, Minneapolis:
*H. A. Whittaker, director.
*O. E. Brownell, C. E., senior sanitary engineer.
Division of child hygiene, university campus, Minneapolis:
Everett C. Hartley, M. D., director.
*Viktor O. Wilson, M. D., C. P. H., assistant director.
*Olivia T. Peterson, R. N., superintendent of public-health nursing.
*Vern D. Irwin, D. D. S., superintendent, dental health education.
Local health services, State office building, St. Paul:
*Robert N. Barr, M. D., C. P. H., director.
*Donald A. Dukelow, educational director, State Office Bldg., St. Paul.

Appropriations for fiscal years ending June 30, 1938 and 1939:

	1938	1939
Divisions of administration and vital statistics:		
Salaries	$32,500	$33,500
Expenses	5,000	7,000
Providing free antitoxin and other biologics	12,000	14,000
For aid to typhoid carriers	----------	4,500
Division of preventable diseases:		
Preventable diseases and laboratory	74,000	76,000
Venereal disease control and venereal disease education	24,000	24,000
Division of sanitation:		
Sanitary engineering and laboratory	27,500	27,500
Stream pollution survey	11,000	11,000
Division of child hygiene:		
Protection for maternity and infancy	20,000	20,000
Indian health work	8,000	10,000
Division of hotel inspection:		
Hotel inspection	45,000	45,000
Total	259,000	272,500

Publications issued by health department:
Educational pamphlets.

MISSISSIPPI STATE BOARD OF HEALTH

Board of health:
J. W. Lipscomb, M. D., president, Columbus.
Felix J. Underwood, M. D., secretary, Jackson.
S. E. Eason, M. D., New Albany.
L. B. Austin, M. D., Rosedale.
H. L. McKinnon, M. D., Hattiesburg.
B. J. Shaw, M. D., Slate Spring.
L. W. Brock, M. D., McComb.
John B. Howell, M. D., Canton.
W. H. Banks, M. D., Philadelphia.
William R. Wright, D. D. S., Jackson.
Executive health officer:
*Felix J. Underwood, M. D., secretary, State board of health, Jackson.
Vital statistics:
*R. N. Whitfield, M. D., director and assistant secretary, Jackson.
Laboratories:
*T. W. Kemmerer, M. D., director, Jackson.
Sanitary engineering:
*H. A. Kroeze, C. E., director, Jackson.
*N. M. Parker, D. V. S., State meat and milk supervisor, Jackson.
*C. M. Ledbetter, assistant State sanitary engineer, Jackson.
*Floyd Ratliff, State sanitary inspector, Jackson.
Industrial hygiene and factory inspection:
*J. W. Dugger, M. D., director, Jackson.
County health work:
*H. C. Ricks, M. D., director, Jackson.
Maternal and child health:
*J. A. Milne, M. D., M. P. H., director, Jackson.
*Mary D. Osborne, R. N., supervisor, public health nursing, Jackson.
Preventable disease control:
*A. L. Gray, M. D., M. P. H., director, Jackson
*Catherine Mayfield, bacteriologist, Jackson.
*Margaret Meade, nurse investigator, Jackson.
Tuberculosis control:
*Henry Boswell, M. D., superintendent, Mississippi State Sanatorium, Sanatorium.
*W. D. Hickerson, M. D., field tuberculosis diagnostic unit, Sanatorium.
*D. L. Anderson, M. D., field tuberculosis diagnostic unit, Sanatorium.

Malaria control:
*George E. Riley, M. D., C. P. H., supervisor Jackson.
*Nelson Rector, C. E., sanitary engineer, Jackson.
*Thomas T. Brackin, Jr., entomologist, Jackson.
Field unit:
*H. B. Cottrell, M. D., C. P. H., supervisor, Jackson.
*Ora E. Phillips, R. N., advisory nurse, Jackson.
*Opal Regan, R. N., advisory nurse, Jackson.
*Johnnie L. Bonds, advisory field clerk, Jackson.
*Joseph E. Johnston, advisory sanitation supervisor, Jackson.
Health education:
*J. A. Milne, M. D., M. P. H., supervisor, Jackson.
*Eleanor Hassell, assistant supervisor, Jackson.
Medical education:
*Q. E. Gatlin, organizer, committee on postgraduate medical education, Jackson.
Mouth hygiene:
*Gladys Eyrich, supervisor, Jackson.
Library:
*Louise Williams, Jackson.
State appropriation for the biennium, July 1, 1938, to June 30, 1940, $485,000.
Publications issued by health department:
Biennial report.
Health pamphlets.

MISSOURI STATE BOARD OF HEALTH

Board of health:
Malvern B. Clopton, M. D., president, St. Louis.
W. L. Brandon, M. D., vice president, Poplar Bluff.
E. Sanborn Smith, M. D., Kirksville.
Paul Forgrave, M. D., St. Joseph.
T. S. Bourke, M. D., Kansas City.
Harry F. Parker, M. D., secretary, State health commissioner, Jefferson City.
Executive health officer:
*Harry F. Parker, M. D., State health commissioner, Jefferson City.
*W. H. Dorsey, business administrator and accountant.
Local health work:
*John W. Williams, Jr., M. D., C. P. H., director.
Venereal disease control:

Division of epidemiology:

Child hygiene:
*James W. Chapman, M. D., director.
Laboratories:
*C. F. Adams, B. Agr., M. D., director.
Sanitary engineering:
*W. Scott Johnson, director.
Industrial hygiene:
*H. I. Miller, Jr., engineer.
Water purification:
*L. E. Ordelheide, director.
Sewage treatment and stream pollution:
*W. A. Kramer, Ph. D., director.
Milk sanitation:
*Glen Young, director.
Vital statistics:
*Thomas W. Chamberlain, director.
Medical licensure:
*Herman S. Gove, M. D., director.
Public health nursing:
*Helena A. Dunham, R. N., director.
Cosmetology and hairdressing:
*Nellia L. Killion, director.
Food and drug department:
*Frank A. Barnes, bookkeeper.
Appropriations for the State board of health, biennial period 1937-38:

State board of health:	
Additions	$16,000
Operation	77,500
Personal service	213,220
Total	306,720

Medical licensure:	
Operation	$10,000
Personal service	15,000
Total	25,000

Water and sewage:	
Operation	8,000
Personal service	7,000
Total	15,000

Cosmetology and hairdressing:	
Additions	300
Operation	22,900
Repairs and replacements	200
Personal service	45,280
Total	68,680

Food and drugs:	
Operation	38,000
Personal service	80,920
Total	118,920

MONTANA DEPARTMENT OF PUBLIC HEALTH

Board of health:
B. L. Pampel, M. D., president, Livingston.
L. H. Fligman, M. D., Helena.
George F. Turman, M. D., Missoula.
E. M. Porter, M. D., Great Falls.

W. F. Cogswell, M. D., secretary, Helena.
Executive health officer:
*W. F. Cogswell, M. D., secretary, Helena. (Temporarily absent.)
Division of communicable diseases:
*B. K. Kilbourne, M. D., acting secretary, epidemiologist and director of county health work, Helena.
Division of child welfare:
*Jessie M. Bierman, M. D., director, Helena.
Division of food and drugs:
*J. W. Forbes, director, Helena.
Division of vital statistics:
*W. F. Cogswell, M. D., State registrar, Helena.
*L. L. Benepe, deputy State registrar, Helena.
Division of water and sewage:
*H. B. Foote, director, Helena.
W. M. Cobleigh, consulting sanitary engineer, Bozeman.
*Ludwig Champa, analyst, Helena.
*C. W. Brinck, assistant sanitary engineer, Helena.
Hygienic laboratory:
*Edith Kuhns, acting director, Helena.
E. D. Hitchcock, M. D., consulting bacteriologist, Great Falls.
Appropriations for the years ending June 30:

	1936	1937
Salaries	$23,300	$35,000
Operating expenses	15,750	14,500
Capital repairs and replacements	500	300
Division of child welfare	10,500	9,000
Board of entomology (Rocky Mountain spotted-fever work)	3,000	500
Total	53,050	59,300

NEBRASKA DEPARTMENT OF HEALTH

Executive health officer:
*P. H. Bartholomew, M. D., acting director of health, Lincoln.
Collaborating epidemiologist:
*P. H. Bartholomew, M. D., Lincoln.
Public health laboratory:
*L. L. Vose, bacteriologist, Lincoln.

Division of sanitary engineering:
*T. A. Filipi, public health engineer, Lincoln.
Division of venereal diseases:
*P. H. Bartholomew, M. D., director, Lincoln.
*Edmund G. Zimmerer, M. D., assistant epidemiologist, Lincoln.
Division of vital statistics:
*Jean Barrett, Lincoln.
Division of maternal and child health:
E. W. Hancock, M. D., assistant director.
Medical examining board:
W. R. Boyer, M. D., Pawnee City.
H. J. Lehnhoff, M. D., Lincoln.
P. A. DeOgny, M. D., Milford.
Appropriations for biennial period ending June 30, 1939:

Salary of director	$6,400
Salaries	29,000
Maintenance	12,000
Special:	
Public health work	20,000
Maternal and child health	32,000
Public health education in tuberculosis and venereal disease	6,000
Total	105,400

NEVADA STATE BOARD OF HEALTH

State board of health:
Richard Kirman, Sr., Governor, president, Carson City.
John E. Worden, M. D., secretary and State health officer, Carson City.
Malcolm McEachin, secretary of State.
John Fuller, M. D., Reno.
T. J. Bluechel, M. D., Minden.
Executive health officer:
John E. Worden, M. D., State health officer, Carson City.
Division of local health administration and epidemiology:
John A. Norton, M. D., director, Reno.
Division of sanitary engineering:
*Wm. Wallace White, E. M., C. P. H. E., director, Reno.
Division of maternal and child health:
*H. Earl Beinap, M. D., director, Reno.
Division of venereal disease control:
Byron H. Caples, M. D., director, Reno.
Division of dental hygiene:
*Quannah S. McCall, D. D. S., director, Reno.
State hygienic laboratory at State university:
*Vera E. Young, acting director, Reno.
Appropriations for period from July 1, 1937, to June 30, 1939:

Salary of secretary	$5,000
Salary of clerk	3,600
Traveling expenses	1,000
Office supplies, heat, rent, and light	1,550
Record books for county registrars	300
Equipment	200
Registration of births and deaths	350
Purchase of diphtheria and other dangerous disease antitoxin	500
Maternal and child health	2,000
Crippled children	2,000
Venereal disease control	7,000
State printing office for State board of health	500

Publications issued by health department:
Biennial report.
Special bulletins.

NEW HAMPSHIRE STATE BOARD OF HEALTH

Board of health:
George C. Wilkins, M. D., Manchester.
Barbara Beattie, M. D., Littleton.
Francis P. Murphy, governor, Nashua (ex officio).
Thomas P. Cheney, attorney general, Laconia. (ex officio).
James W. Jameson, M. D., Concord.
Percy A. Shaw, Manchester.
Executive health officer:
*T. P. Burroughs, M. D., secretary, State board of health, Concord.
Division of maternal and child health:
*Byron H. Farrall, M. D., director, Boscawen.
Crippled children's services:
*Byron H. Farrall, M. D., director, Boscawen.
Department of vital statistics:
T. P. Burroughs, M. D. (ex officio), Concord.
Division of chemistry and sanitation:
*Charles D. Howard, chief, Concord.
*Frederick Vintinner, assistant chemist, Concord.
*Harriet I. Albee, assistant chemist and bacteriologist, Concord.
*Leonard W. Trager, sanitary engineer, Concord.
*Joseph X. Duval, chief inspector, Concord.
*Russell A. Eckloff, sanitary inspector, Concord.
Diagnostic and pathological department:
*William R. Macleod, serologist and diagnostic bacteriologist, Concord.
H. N. Kingsford, M. D., pathologist, Hanover.
*Benjamin Jewell, assistant in bacteriological laboratory, Concord.
Venereal disease division:
*Charles A. Weaver, M. D., Manchester.

Appropriations for fiscal year ending June 30, 1939:

State board of health	$60,455
Laboratory of hygiene	20,020
Vital statistics	5,250
Total	85,725

Publications issued by health department:
Bulletin "Health News."
Biennial report.
Biennial vital statistics report.

NEW JERSEY DEPARTMENT OF HEALTH

Board of health:
Irvin E. Deibert, M. D., president, Camden.
E. W. Smillie, V. M. D., vice president, Plainsboro.
Mrs. Helen M. Berry, Newark.
Margaret L. MacNaughton, Jersey City.
Joseph N. Fowler, Bivalve.
J. E. H. Guthrie, D. D. S., Newark.
Clyde Potts, C. E., Morristown.
John V. Bishop, Columbus.
James E. Russell, Trenton.
Stanley H. Nichols, M. D., Asbury Park.
Augustus L. L. Baker, M. D., Dover.
Executive health officer:
*J. Lynn Mahaffey, M. D., director of health, Trenton.
Bureau of bacteriology:
*John V. Mulcahy, chief, Trenton.
Bureau of chemistry:
*John E. Bacon, chief, Trenton.
Bureau of administration:
*Edmund R. Outcalt, acting chief, Trenton.
Bureau of food and drugs:
*Walter W. Scofield, chief, Trenton.
Bureau of child hygiene:
Julius Levy, M. D., consultant, Trenton.
Bureau of local health administration:
*Wm. H. MacDonald, chief, Trenton.
Bureau of engineering:
*H. P. Croft, chief, Trenton.
Bureau of vital statistics:
*David S. South, chief, Trenton.
Division of venereal disease control:
Karl M. Scott, chief, Trenton.

Appropriations for fiscal year ending June 30, 1938:

Salaries	$253,660
Miscellaneous	64,315
Child hygiene	108,576
Venereal disease control	27,220
Pneumonia control	25,000
Other special appropriations	69,955
Total	548,726

Publications issued by health department:
Bimonthly bulletin.
Annual report.

NEW MEXICO DEPARTMENT OF PUBLIC HEALTH

Board of public health:
E. W. Fiske, M. D., chairman, Santa Fe.
Eugene P. Sims, M. D., vice chairman, Alamogordo.
E. P. Moore, secretary, Santa Fe.
M. K. Wylder, M. D., Albuquerque.
Mrs. Tobias Espinosa, Espanola.
Executive health officer:
*E. B. Godfrey, M. D., director of public health, Santa Fe.
Division of sanitary engineering and sanitation:
*Paul S. Fox, M. S. in C. E., chief, Santa Fe.
Division of county health work:
*C. H. Douthirt, M. D., director, Santa Fe.
Division of epidemiology:
*E. F. McIntyre, M. D., C. P. H., epidemiologist. Santa Fe.
Division of maternal and child health:
*Hester B. Curtis, M. D., M. P. H., director, Santa Fe.
State supervisor of public health nursing:
*Mrs. Fannie T. Warnecke, R. N., Santa Fe.
Division of health education:
*Charles M. Cree, chief, Santa Fe.
Public health laboratory:
*Miss Myrtle Greenfield, chief, Albuquerque.
State registrar:
*Miss Billy Tober, Santa Fe.
Appropriation for years 1937-38 and 1938-39, per annum, $59,500. Fiscal year ends June 30.

NEW YORK STATE DEPARTMENT OF HEALTH

Public-health council:
Simon Flexner, M. D., LL. D., chairman, New York.
Homer Folks, LL. D., vice chairman, Yonkers.
V. A. Van Volkenburgh, M. D., secretary, Albany.
Livingston Farrand, M. D., LL. D., Ithaca.
Walter A. Leonard, M. D., Cambridge.
Henry N. Ogden, C. E., Ithaca.
Herman G. Weiskotten, M. D., Syracuse.
George Baehr, M. D., New York.
Clayton W. Greene, M. D., Buffalo.
Edward S. Godfrey, Jr., M. D. (ex officio), commissioner of health, Albany.
Executive health officer:
*Edward S. Godfrey, Jr., M. D., State commissioner of health, Albany.
Deputy commissioner of health:
*Paul B. Brooks, M. D., Albany.
Assistant commissioner for local health administration:
*V. A. Van Volkenburgh, M. D.
Assistant commissioner for preventable diseases:
*George H. Ramsey, M. D., Albany.
General superintendent of tuberculosis hospitals:
*Robert E. Plunkett, M. D.
Administrative officer:
*Edmund Schreiner, LL. B., Albany.
Administrative finance officer:
*Clifford C. Shoro, Albany.
Division of public health education:
*B. R. Rickards, director, Albany.
Division of sanitation:
*Charles A. Holmquist, C. E., director, Albany.
Division of vital statistics:
*Joseph V. de Porte, Ph. D., director, Albany.
Division of maternity, infancy, and child hygiene:
*Elizabeth M. Gardiner, M. D., director, Albany.
Division of communicable diseases:
Ernest E. Stebbins, M. D., director, Albany.
Division of tuberculosis:
*William Siegal, M. D., director, Albany.
Division of syphilis control:
*William A. Brumfield, M. D., director, Albany.
Division of laboratories and research:
*August B. Wadsworth, M. D., director, Albany.
Division of public health nursing:
*Marion W. Sheahnan, R. N., director, Albany.
Division of orthopedics:
*Walter J. Craig, M. D., director, Albany.
Division of cancer control:
*Burton T. Simpson, M. D., director.
State institute for the study of malignant diseases, Buffalo:
*Burton T. Simpson, director.
New York State Hospital for Incipient Pulmonary Tuberculosis, Ray Brook:
*H. A. Bray, M. D., superintendent.
New York State Reconstruction Home, West Haverstraw:
*John B. Kelly, superintendent.
Homer Folks Tuberculosis Hospital, Oneonta:
*Ralph Horton, M. D., superintendent.
New York State Tuberculosis Hospital, Mount Morris:
*N. Stanley Lincoln, M. D., superintendent.
Herman M. Biggs Memorial Hospital, Ithaca:
*John K. Deegan, M. D., superintendent.
Appropriations for fiscal year ending June 30, 1939:

Personal service	$2,651,105.00
Maintenance and operation	*1,903,450.00
State aid to county laboratories	172,526.91
State aid to county health activities	594,896.95
Construction and permanent betterments	91,900.00
Total	5,413,878.86

Other sources of revenue:

Fees from certified transcripts of birth, death, and marriage certificates, per annum	$5,892
Marriage license applications	36,965
Licensing laboratories	392
Sale of serums	2,893
Licensing of embalmers and undertakers	4,772
Registration of embalmers and undertakers	25,800
Rental of radium	71
Miscellaneous receipts	284
Care of county cases at reconstruction home	389,252
Refund of transportation of discharged patients from tuberculosis hospitals, Ray Brook	3,543
Care of county patients at Homer Folks Tuberculosis Hospital, Oneonta	76,516
Care of county patients at Mt. Morris Tuberculosis Hospital, Mt. Morris	55,734
Care of county patients at Herman M. Biggs Memorial Hospital, Ithaca	21,427

Publications issued by health department:
Weekly Health News.
Monthly Vital Statistics Review.
Annual Report.
*Includes $205,500 for "Pneumonia control."

NORTH CAROLINA STATE BOARD OF HEALTH

Board of health:
S. D. Craig, M. D., president, Winston-Salem.
J. N. Johnson, D. D. S., vice president, Goldsboro.
G. G. Dixon, M. D., Ayden.
H. Lee Large, M. D., Rocky Mount.
H. G. Baity, Chapel Hill.
W. T. Rainey, M. D., Fayetteville.
Hubert B. Haywood, M. D., Raleigh.
James P. Stowe, Ph. G., Charlotte.
John LaBruce Ward, M. D., Asheville.
Executive health officer:
*Carl V. Reynolds, M. D., secretary-treasurer and State health officer, Raleigh.
Division of preventive medicine:
*G. M. Cooper, M. D., director, and assistant State health officer, Raleigh.
*Roy Norton, M. D., assistant director, Raleigh.
*James T. Barnes, State supervisor of crippled children, Raleigh.
(a) Maternity and infancy.
(b) Health education.
(c) School health supervision.
(d) Crippled children.
Division of oral hygiene:
*Ernest A. Branch D. D. S., director, Raleigh.
Division of sanitary engineering:
*Warren H. Booker, C. E., director, Raleigh.
Division of laboratories:
John H. Hamilton, M. D., director, Raleigh.

Division of epidemiology:
*J. C. Knox, M. D., M. P. H., director, Raleigh.
*G. M. Leiby, M. D., venereal disease control officer.
Division of county health work:
*R. E. Fox, M. D., M. P. H., director, Raleigh.
*Walter J. Hughes, M. D., field agent.
Division of vital statistics:
*R. T. Stimpson, M. D., director, Raleigh.
Division of industrial hygiene:
*H. F. Easom, M. D., director, Raleigh.
*R. L. Robinson, M. D., assistant director, Raleigh.
Appropriation for fiscal year ending June 30, 1938, $323,200.
Other sources of revenue: Special fees, $61,366.

NORTH DAKOTA STATE DEPARTMENT OF HEALTH

Advisory health council:
John Crawford, M. D., New Rockford.
Agnes Stucke, M. D., Garrison.
C. D. Dursema, D. D. S., Bismarck.
Alvin Strutz, attorney general, ex officio, Bismarck.
Arthur E. Thompson, superintendent of public instruction, ex officio, Bismarck.
Maysil M. Williams, M. D., C. P. H., State health officer.
Executive health officer:
*Maysil M. Williams, M. D., C. P. H., State health officer, Bismarck.
Division of child hygiene and public health nursing:
*August C. Orr, M. D., director.
*Margrete Skaarup, R. N., supervisor, public health nursing.
Division of preventable diseases:
*John A. Cowan, M. D., director.
Division of vital statistics:
*Margaret D. Lang, director.
Division of sanitary engineering:
*Mark D. Hollis, C. E., director.
Division of laboratories:
*Melvin E. Koons, director, Grand Forks.
Appropriations for biennial period ending June 30 1939:

State department of health:	
Salary of State health officer	$6,000
Epidemiologist	4,800
Vital statistician	2,640
Sanitary engineer	5,000
Chief clerk	3,000
Stenographers	8,640
Clerks	3,840
Postage	2,000
Office supplies	1,500
Furniture and fixtures	1,000
Printing	2,500
Miscellaneous	1,000
Travel expense	7,600
Card indexing	3,000
Arsenicals	6,000
Automobile	500
	59,020
Public health laboratories:	
Postage	1,000
Office supplies	400
Furniture and fixtures	2,000
Printing	500
Miscellaneous	1,500
Travel	300
Laboratory supplies	4,000
Emergency	1,000
Bismarck laboratory:	
Director and first technician	5,000
Second technician	2,800
Stenographer	1,920
Dishwasher	300
Grand Forks laboratory:	
First technician	5,000
Second technician	2,800
Stenographer	1,920
Dishwasher	300
	30,740

Appropriations for biennial period ending June 30, 1939—Continued.

Division of child hygiene:	
Salary, director of division	$7,200
Supervisor—public health nurses	4,800
Assistant supervisor—public health nurses	4,200
Physician for pre-school conferences	3,000
Stenographers	4,320
Postage	1,000
Office supplies	600
Furniture and fixtures	200
Printing	3,000
Miscellaneous	400
Travel expense	7,800
Biologicals	2,500
	39,020
Total	128,780

OHIO DEPARTMENT OF HEALTH

Public health council:
Walter H. Hartung, M. D., chairman, Columbus.
F. E. Mahla, M. D., secretary, Columbus.
Warren C. Breidenbach, M. D., Dayton.
H. G. Southard, M. D., Marysville.
W. I. Jones, D. D. S., Columbus.
A. Julius Freiberg, LL. B., Cincinnati.
Executive health officer:
*Walter H. Hartung, M. D., director of health, Columbus.
Assistant director of health:
*F. E. Mahla, M. D.
Division of administration:
*F. E. Mahla, M. D., chief.
*C. A. Orrison, chief clerk.
Bureau of local health organization:
*R. W. DeCrow, M. D., chief.
Division of communicable diseases:
*Finley Van Orsdall, M. D., chief.
Bureau of tuberculosis:
*W. J. Smith, M. D., chief.
Bureau of prevention of blindness and venereal disease control:
*W. P. Johnson, M. D., chief.
Division of sanitary engineering:
*F. H. Waring, B. S. in C. E. and S. E., chief.
Bureau of plumbing inspection:
*R. T. Barrett, chief.
Division of vital statistics:
*Irva C. Plummer, chief.
Division of laboratories:
*Leo F. Ey, chief.
Division of hygiene:

Bureau of hospitals:
*Clara E. Reeder, R. N., chief.
Bureau of occupational diseases and industrial hygiene:
*Kenneth D. Smith, M. D., chief.
Bureau of child hygiene:
*A. W. Thomas, M. D., chief.
Bureau of dental hygiene:
*D. L. Houser, D. D. S., chief.
Division of public health nursing:
*S. Gertrude Bush, R. N., chief.
Appropriations for 12 months ending Dec. 31, 1937:

Personal services	$189,500
Maintenance	42,177
State aid for health districts	150,000
Total	381,677

Publications issued by health department:
Ohio Health News (monthly).

OKLAHOMA DEPARTMENT OF PUBLIC HEALTH

Executive health officer:
*Charles M. Pearce, M. D., State health commissioner, Oklahoma City.
Assistant State health commissioner:
*J. P. Folan, Oklahoma City.
Bureau of vital statistics:
*Alice L. Talbot, State registrar, Oklahoma City.
*Jo. C. Rose, statistician, Oklahoma City.

Bureau of maternal and child health:
*Paul J. Collopy, M. D., Medical director, Oklahoma City.
*J. T. Bell, M. D., assistant director, Oklahoma City.
*Laura Van De Mark, R. N., director of nurses, Oklahoma City.
Bureau of epidemiology:
*Martin R. Boyer, M. D., director, Oklahoma City.
Bureau of sanitary engineering:
*Henry J. Darcey, director, Oklahoma City.
*Paul Henderson, assistant, Oklahoma City.
*Carl Warkentin, assistant, Oklahoma City.
Bureau of diagnostic laboratories:
*Taylor Rogers, State chemist, director, Oklahoma City.
*Floyd Whipple, bacteriologist, Oklahoma City.
Branch laboratory:
*Edwin C. Turner, Tahlequah.
*J. P. Hutchinson, Elk City.
*Louis Quoss, Talihina.
Bureau of venereal disease control:
*R. N. Adams, M. D., director, Oklahoma City.
Bureau of full-time health units and districts:
*Chas. E. Leonard, M. D., director, Oklahoma City.
Bureau of dental education:
*F. P. Bertram, D. D. S., director.
*C. C. Kersey, D. D. S., assistant.
Bureau of tuberculosis control:
*W. O. Murphy, M. D., director.
Bureau of community sanitation and malaria control:
*Hugh Payne, director.
Bureau of milk control:
*Wm. J. Wyatt, director.
Appropriation for fiscal year ending June 30, 1938 ..... $290,250
Appropriation for fiscal year ending June 30, 1939 281,650

OREGON STATE BOARD OF HEALTH

Board of health:
Arthur W. Chance, D. D. S., M. D., president, Portland.
Archie C. Van Cleve, M. D., vice president, Portland.
Robert L. Benson, M. D., Portland.
N. E. Irvine, M. D., Lebanon.
Frank R. Mount, M. D., Portland.
F. Floyd South, M. D., Portland.
W. J. Weese, M. D., Ontario.
Executive health officer:
*Frederick D. Stricker, M. D., secretary and State health officer, Portland.
Registrar of vital statistics:
*Frederick D. Stricker, M. D., Portland.
Division of public health nursing and child hygiene:
Olive M. Whitlock, R. N., Portland.
Director of laboratory:
*William Levin, D. P. H., Portland.
Division of sanitary engineering:
Carl E. Green, sanitary engineer.
Division of maternal and child health:
G. D. Carlyle Thompson, M. D., director.
Division of oral health:
Floyd H. DeCamp, D. D. S., director.
Appropriations for fiscal year ending Dec. 31, 1938, $40,972.18.
Publications issued by health department:
Annual report.
Biennial report.
Pamphlets and posters.
Weekly letter.

PANAMA CANAL ZONE HEALTH DEPARTMENT

Executive health officer:
*Col. H. C. Pillsbury, Medical Corps, United States Army, chief health officer, Balboa Heights.
*D. P. Curry, M. D., assistant chief health officer, Balboa Heights.
*L. B. Bates, M. D., chief, board of health laboratory, Ancon.
*O. E. Denney, Surgeon, U. S. P. H. S., chief quarantine officer, Balboa Heights.
Appropriation for fiscal year 1937-38, $1,665,000.

PENNSYLVANIA DEPARTMENT OF HEALTH

Advisory health board:
Edith MacBride-Dexter, M. D., chairman.
Moses Behrend, M. D., Philadelphia.
R. J. Behan, M. D., Pittsburgh.
E. S. Briggs, M. D., Warren.
Walter S. Brenholtz, M. D., Williamsport.
John A. Meehan, D. D. S., New Castle.
Leonard M. Sandston, Pittsburgh.
Sanitary water board:
Edith MacBride-Dexter, M. D., chairman.
James F. Bogardus, secretary of forests and waters.
Charles A. French, commissioner of fisheries.
Philip G. Platt, Wallingford.
Marion McKay, Pittsburgh.
Frank D. McCue, Oil City.
H. E. Moses, chief engineer and secretary.
J. R. Hoffert, civil engineer and acting secretary.
State board of housing:
George Evans, Pittsburgh.
Arthur Shrigley, Philadelphia.
George Kohn, Allentown.
William B. Ramsey, Philadelphia.
Alfred Hagen, Scranton.
Charles V. Doyle, executive director.
A. L. Zindel, assistant executive director.
John Graham, Jr., technical advisor on housing.
State board of undertakers:
David H. Woodward, Monessen.
Leonard A. Levine, Philadelphia.
John B. Schofer, Topton.
Maurice A. Hoff, New Cumberland.
Joseph N. Neid, Swissvale.
Executive Bureau:
*Edith MacBride-Dexter, M. D., secretary of health, Harrisburg.
*Paul A. Rothfuss, M. D., deputy secretary of health, Harrisburg.
*Clinton T. Williams, comptroller, Harrisburg.
Division of accounts:
*E. J. MacNamara, Harrisburg.
Division of Supplies:
*S. J. Purvis, Harrisburg.
Division of Laboratories:
*Louis Tuft, M. D., Philadelphia.
Division of public health education:
*Thomas Shriver, Harrisburg.
Division of dental hygiene:
*Milton Waas, D. D. S., Harrisburg.
Institutions:
Mont Alto Sanatorium:
*C. C. Custer, M. D., medical director, South Mountain.
Cresson Sanatorium:
*Louis A. Wesner, M. D., medical director, Cresson.
Hamburg Sanatorium:
*H. A. Gorman, M. D., medical director, Hamburg.
State Hospital for Crippled Children:
*John S. Donaldson, M. D., chief surgeon, Elizabethtown.
*Mrs. Hazel Smith, superintendent, Elizabethtown.
Bureau of health law enforcement:
*Paul A. Rothfuss, M. D.
Division of drug control:
*Michael V. McFadden, Harrisburg.
Division of inspection:
*Horace Krone, Harrisburg.
Bureau of maternal and child health:
*Wayne S. Ramsey, M. D., Harrisburg.
Pre-school division:
*Wayne S. Ramsey, M. D., Harrisburg.
Division of school medical inspection:
Oscar S. Tischler, Harrisburg.
Bureau of health conservation:
*J. Moore Campbell, M. D., Harrisburg.
Division of epidemiology:
*Paul A. Keeney, M. D., Harrisburg.
*C. B. Mather, M. D., Harrisburg.
Division of tuberculosis:
*Murray L. McElwee, M. D., Harrisburg.
*Sydney L. Feldstein, M. D., Harrisburg.
Division of syphilis and genitoinfectious diseases:
William W. Bolton, M. D., Harrisburg.
Division of environmental hygiene:
*Edward Garner, Harrisburg.

Bureau of nursing:
*Alice M. O'Hallaron, R. N., Harrisburg.
Bureau of milk sanitation:
*Wilbur K. Moffett, Harrisburg.
Bureau of sanitary engineering:
H. E. Moses, Harrisburg.
Bureau of vital statistics:
*Frank P. Strome, M. D., Harrisburg.
Appropriation for biennial period ending May 31, 1939:

Salary of secretary	$20,000
General health purposes and maintenance of sanatoria and hospital for crippled children	6,178,500
Total	6,198,500

PUBLIC HEALTH AND WELFARE SERVICE OF THE PHILIPPINES

(Under the Department of Public Instruction)

Commissioner of health and welfare:
*José Fabella, M. D., Manila.

PUERTO RICO DEPARTMENT OF HEALTH

Insular board of health:
Blas C. Herrero, M. D., president.
W. A. Glines, M. D., San Juan.
E. Koppisch, M. D., San Juan.
D. H. Cook, expert chemist.
Etienne Totti, civil and sanitary engineer, San Juan.
A. Rivera, veterinarian.
Manuel V. del Valle, D. D. S.
A. Ortiz Toro, attorney, San Juan.
H. A. Bladuell, M. D., secretary.
Executive health officer:
*E. Garrido Morales, M. D., Dr. P. H., commissioner of health, San Juan.
*Antonio Arbona, M. D., assistant commissioner of health, section of public health, San Juan.
*Pedro S. Malaret, M. D., assistant commissioner of health, section of charities, San Juan.
*George C. Payne, M. D., advisor, public health administration.
Division of property and accounts:
*Rafael Méndez, chief, San Juan.
Bureau of general sanitation:
*W. F. Lippitt, M. D., chief, San Juan.
Bureau of sanitary engineering:
*Octavio Marcano, C. E., S. E., San Juan.
Bureau of general inspection of construction and plumbing:
*José Cantellops, chief, San Juan.
Biological laboratory:
*Oscar Costa Mandry, M. D., director, San Juan.
Chemical laboratory:
*R. del Valle Sárraga, Ph. C., director, San Juan.
Bureau of epidemiology and vital statistics:
*Abel de Juan, M. D., chief, San Juan.
*S. Riera López, M. D., C. P. H., epidemiologist, San Juan.
*J. Basora Defilló, M. D., C. P. H., epidemiologist, San Juan.
*J. Rodriguez Pastor, M. D., tuberculosis specialist, San Juan.
Bureau of infant hygiene:
*Marta Robert de Romeu, M. D., chief, San Juan.
Bureau of public health units:
José Chaves, M. D., chief, San Juan.
Bureau of social welfare:
*Beatriz Lassalle, superintendent, San Juan.
Appropriations for the fiscal year 1937-38:

Office of the commissioner	$139,188.17
Bureau of general sanitary inspection	53,050.00
Bureau of sanitary engineering	42,625.00
Biological laboratories	58,846.75
Chemical laboratory	21,340.00
Bureau of epidemiology and vital statistics	183,136.25
Bureau of infant hygiene	13,476.75
Bureau of public health units	454,166.75
Section of charities	1,051,149.70
Total	2,016,979.37

RHODE ISLAND DEPARTMENT OF PUBLIC HEALTH

Executive health officer:
*Edward A. McLaughlin, M. D., director of public health and State registrar ex-officio, State Office Building, Providence.
Bureau of preventable diseases:
*Morris L. Grover, M. D., M. P. H., epidemiologist.
*Thomas B. Casey, administrative assistant.
*Daniel L. Morrissey, M. D., assistant epidemiologist.
Bureau of maternal and child welfare:
*Francis V. Corrigan, M. D., chief.
*Edward Conaty, fiscal officer.
Bureau of crippled children:
William A. Horan, M. D., chief.
Division of industrial hygiene:
*James P. Deery, M. D., chief.
*Charles L. Pool, engineer.
Division of laboratories:
*Edgar J. Staff, chief.
*James Dillon, sanitary engineer.
Division of vital statistics:
*Genevieve E. Dolan, assistant registrar.
Division of purification of waters:
*Walter J. Shea, chief.
Division of food and drugs and sanitary inspection:
*Henry J. McLaughlin, Ph. G., special agent.
Division of narcotic drugs and pharmacies:
*A. Norman LaSalle, Ph. G., LL. B., chief.
Division of examiners:
*Robert D. Wholey, chief.
Division of athletics:
Charles F. Reynolds, chief.
Northern district health unit:
*James P. O'Brien, M. D., district health officer.
Southern district health unit:
*Raymond F. McAteer, M. D., district health officer.
Southeastern district health unit:
*Joseph Castronovo, M. D., district health officer.

State appropriations for the fiscal year ending June 30, 1938:

Administrative	$20,100
Bureau of preventable diseases	15,255
Bureau of maternal and child welfare	27,175
Bureau of crippled children	11,500
Bureau of industrial hygiene	11,500
Laboratory division:	
Pathological laboratory	29,985
Chemical laboratory	16,215
Vital statistics	11,200
Sanitary inspection	27,325
Narcotic drugs and pharmacies	10,050
Purification of waters	9,830
Food and drugs	5,720
Athletics	7,900
Examiners	12,050
Total State appropriation for department of health	215,805

Other sources of revenue:
Funds made available under provisions of the Social Security Act:

U. S. Public Health Service	$60,227
U. S. Children's Bureau	84,505

Registration fees: Chiropody, $3; chiropractic, $3; optometry, $3; dentistry, $1; funeral directors, $10; embalmers, $5, hairdressers, $2; dental hygienist, $1; barbers, $2; nurses, $0.50; midwives, $0.50.
Licenses for swimming pools:
For the entire year, $20; for any quarter thereof, $5.
Licenses for camps and bathing beaches, $10 per annum.
Fees for certified copies of birth, marriage, and death certificates, each $0.50.
Publications:
Annual health report.
Annual registration report.
Weekly and monthly morbidity reports.
Monthly health revue.
Monthly vital statistics report.

SOUTH CAROLINA STATE BOARD OF HEALTH

Executive committee:
F. M. Routh, M. D., chairman, Columbia.
K. M. Lynch, M. D., Charleston.
W. R. Mead, M. D., Florence.
E. A. Hines, M. D., Seneca.
W. R. Wallace, M. D., Chester.
L. D. Boone, M. D., Aiken.
George W. Dick, D. D. S., Sumter.
D. Lesesne Smith, M. D., Spartanburg.
J. Lee Carpenter, Ph. G., Greenville.
John M. Daniel, attorney general, Columbia.
A. J. Beattie, comptroller general, Columbia.
Executive health officer:
*James A. Hayne, M. D., State health officer, Columbia.
G. E. McDaniel, epidemiologist, Columbia.
Bureau of rural sanitation and county health work:
*Ben. F. Wyman, M. D., director, Columbia.
Hygienic laboratory:
*H. M. Smith, M. D., director, Columbia.
Bureau of vital statistics:
*Martin Woodward, M. D., director, Columbia.
Appropriations, July 1, 1937, to June 30, 1938:

Superintendence and control of health	$1,270
Superintendence and accounts	21,027
Bureau of rural sanitation and county health work	79,150
Bureau of vital statistics	10,580
Hygienic laboratory	12,280
Distribution of biologics	34,000
Total	158,307

SOUTH DAKOTA STATE BOARD OF HEALTH

Board of health:
N. T. Owen, M. D., president, Rapid City.
Park B. Jenkins, M. D., superintendent, Pierre.
J. B. Vaughn, M. D., Castlewood.
R. J. Quinn, M. D., Burke.
M. W. Myers, D. O.
Executive health officer:
*Park B. Jenkins, M. D., superintendent, Pierre.
*B. A. Dyar, M. D., assistant health officer, Pierre.
*G. J. Van Heuvelen, director of crippled children, Pierre.
*R. H. Wilcox, epidemiologist, Pierre.
*Park B. Jenkins, M. D., division of vital statistics, Pierre.
*Viola Russell, M. D., director of maternal and child health, Pierre.
*Florence Walker Englesby, R. N., director of public health nursing.
*W. W. Towne, division of sanitary engineering, Pierre.
*John Wiley, assistant sanitary engineer, Pierre.
*Richard Poston, assistant sanitary engineer, Pierre.
*B. A. Dyar, M. D., director of medical license, Pierre.
*Esther Kempter, division of accounts and records, Pierre.
*J. C. Ohlmacher, M. D., laboratories (at Vermillion), Vermillion.

	1937-38	1938-39
Appropriations:		
Salaries and wages	$10,000	$10,000
Administrative expense to be used in connection with Federal funds	10,000	10,000
Biological products	2,000	2,000
Postage, communication, and travel	3,000	3,000
Crippled children	25,000	25,000
Dues	25	25
Infancy and maternity work	5,000	5,000
Office supplies, printing, and binding	2,000	2,000
Total	57,025	57,025

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

Central administration:
*W. C. Williams, M. D., C. P. H., commissioner, Nashville.
Local health service:
*R. H. Hutcheson, M. D., C. P. H., director, Nashville.
Maternal and child hygiene:
*John M. Saunders, M. D., C. P. H., director, Nashville.
Public health nursing:
*Miss Frances Hagar, R. N., director, Nashville.
Division of vital statistics:
*W. W. Hubbard, M. D., acting director, Nashville.
Division of preventable diseases:
*C. B. Tucker, M. D., C. P. H., acting director, Nashville.
Division of sanitary engineering:
*Howard D. Schmidt, C. E., acting director, Nashville.
Division of laboratories:
*W. H. Gaub, C. P. H., director, Nashville.
State appropriation for year ending June 30, 1938, $375,000.
Other sources of revenue:
Rockefeller Foundation International Health Division, for year ending June 30, 1938, $27,100.
Commonwealth Fund, for year ending June 30, 1938, $37,447.
(Figures are exclusive of Federal and local appropriations.)

TEXAS STATE DEPARTMENT OF HEALTH

State board of health:
W. P. Harrison, M. D., chairman, Teague.
J. S. McCelvey, M. D., vice chairman, Temple.
Henry F. Hein, Phar. D., San Antonio.
Wm. L. Baugh, M. D., Lubbock.
W. M. Dickens, M. D., Greenville.
Hubert Jackson, D. D. S., San Antonio.
R. J. Rowe, M. D., Kaufman.
E. W. Wright, M. D., Bowie.
Executive officer:
*Geo. W. Cox, M. D., State health officer, Austin.
Local health service:
*J. W. E. H. Beck, M. D., director.
Vital statistics:
*W. A. Davis, M. D., registrar.
State laboratory:
*S. W. Bohls, M. D., director.
Epidemiology:
*A. M. Clarkson, M. D., director.
Maternal and child health:
*J. M. Coleman, M. D., director.
*Van C. Tipton, M. D., field director.
County health units:
*G. W. Luckey, M. D., field director.
Industrial hygiene:
*Carl A. Nau, M. D., director.
Tuberculosis control:
*Howard E. Smith, M. D., director.
Venereal disease control and mental hygiene:
*W. Arthur Smith, M. D., director.
Malaria investigation:
*C. P. Coogle, M. D., director.
Dental health:
*Edward Taylor, D. D. S., director.
Sanitary engineering:
*V. M. Ehlers, C. E., director.
Food and drugs:
*F. D. Brock, Ph. G., director.
Public health education:
*L. E. Bracy, director.
Public relations:
*Stanford Payne, director.
Administrative assistant:
*P. A. Kerby.
Chief clerk and accountant:
*G. N. Holton.
Public health districts:
*H. H. Puckett, M. D., director, district No. 1, Floydada.
*R. B. Wolford, M. D., director, district No. 2, Mineral Wells.
*R. L. Cherry, M. D., director, district No. 3, Kaufman.

Public health districts—Continued.
*A. M. Dashiell, M. D., director, district No. 4, Bryan.
*Harold Wood, M. D., director district No. 5, Kingsville.
*Thos. L. Waggoner, M. D., director, district No. 6, San Angelo.
Appropriations (annual) for fiscal years ending Aug. 31, 1938 and 1939:

Central administration	$219,381
District health units	97,500

UTAH STATE BOARD OF HEALTH

Board of health:
Joseph R. Morrell, M. D., president, Ogden.
J. L. Jones, M. D., secretary, Salt Lake City.
T. B. Beatty, M. D., Salt Lake City.
E. A. Tripp, D. D. S., Salt Lake City.
T. J. Howells, M. D., Salt Lake City.
R. A. Hart, C. E., Salt Lake City.
Executive health officer:
*J. L. Jones, M. D., Dr. P. H., State health commissioner, Salt Lake City.
Division of public health education:
*D. C. Houston, director, Salt Lake City.
Division of vital statistics:
*J. L. Jones, M. D., Dr. P. H., State registrar, Salt Lake City.
*Eva W. Ramsey, deputy registrar, Salt Lake City.
Division of sanitary engineering:
*Lynn M. Thatcher, director, Salt Lake City.
Bacteriological laboratory:
*E. H. Bramhall, director, Salt Lake City.
Division of epidemiology:
*Wm. M. McKay, M. D., M. P. H., director, Salt Lake City.
Venereal disease control and local health administration:
*D. D. Carr, M. D., C. P. H., director, Salt Lake City.
Division of maternal and child health:
*E. M. Jeppson, M. D., director, Salt Lake City.
Division of public health nursing:
*Lily Hagerman, R. N., State advisory nurse, Salt Lake City.
Division of crippled children's service:
*Marcella McInnerny, R. N., director, Salt Lake City.
County and district health units:
*D. Keith Barnes, M. D., C. P. H., director, Davis County, Kaysville.
*Welby W. Bigelow, M. D., C. P. H., health officer, district No. 1, Salt Lake City.
*Alton A. Jenkins, M. D., C. P. H., health officer, district No. 2, Cedar City.
*Edw. L. Van Aelstyn, M. D., C. P. H., health officer, district No. 3, Price.
*Lloyd M. Farner, M. D., C. P. H., health officer, district No. 4, Provo.
*E. H. Silverstone, M. D., C. P. H., health officer, district No. 5, Richfield.
Division of dental health:
*R. C. Dalgleish, D. D. S., director.
Appropriations for fiscal year ending June 30, 1938, $108,000.

VERMONT DEPARTMENT OF PUBLIC HEALTH

State board of health:
Charles G. Abell, M. D., chairman, Enosburg Falls.
Claude M. Campbell, M. D., Manchester Center.
Clarence H. Burr, M. D., Montpelier.
Executive health officer:
*Charles F. Dalton, M. D., secretary, State board of health, Burlington.
Laboratory of hygiene:
*Charles F. Whitney, M. D., Burlington.
Sanitary engineering:
Earle L. Waterman, C. E., director, Burlington.
Sanitary inspector:
*Fred S. Kent, M. D., Burlington.
Division of communicable diseases:
*Fred S. Kent, M. D., Burlington.
Division of tuberculosis and industrial hygiene:
*Harold W. Slocum, Burlington.
Division of crippled children:
*Miss Lillian E. Kron, R. N., Burlington.
Division of public health nursing:
*Miss Nellie M. Jones, R. N.
Division of maternal and child health:
*Paul D. Clark, M. D.
Appropriations for fiscal year ending June 30, 1938, $64,000; 1939, $64,000.
Other sources of revenue: Private donations for study and treatment of infantile paralysis.
Publications issued by the department of public health:
Biennial report.
Modern Health Crusader.

VIRGIN ISLANDS DEPARTMENT OF HEALTH

Executive health officer:
*Knud Knud-Hansen, M. D., commissioner of public health, Charlotte Amalie.

VIRGINIA DEPARTMENT OF HEALTH

Board of health:
W. T. Graham, M. D., president, Richmond.
Mrs. Franklin H. Kenworthy, Purcellville.
Frank Darling, Hampton.
W. R. Williams, M. D., Richlands.
George B. Lawson, M. D., Roanoke.
Guy R. Harrison, D. D. S., Richmond.
L. T. Royster, M. D., University.
Executive health officer:
*I. C. Riggin, M. D., State health commissioner, Richmond.
Assistant health officer:
*Roy K. Flannagan, M. D. Richmond.
Director of rural health work and tuberculosis outpatient service:
———— ————.
Epidemiologist:
*G. F. McGinnes, M. D., Richmond.
Director of child health:
*B. B. Bagby, M. D., Richmond.
Registrar of vital statistics:
*W. A. Plecker, M. D., Richmond.
Director of public health nursing:
*Mary I. Mastin, R. N., Richmond.
Director of mouth hygiene:
*N. T. Ballou, D. D. S., Richmond.
Acting director of laboratories:
*Adah Corpening, Richmond.
Chief sanitary engineer:
*Richard Messer, C. E., Richmond.
Director of crippled children's bureau:
*E. C. Harper, M. D.
Director of health education:
*J. C. Funk.
Director of industrial hygiene:
*W. D. Tillson, M. D.
Appropriations for the year of July 1, 1937, to June 30, 1938:

Administration	$22,675
Health education	8,950
Sanitary engineering	18,870
Shellfish sanitation	15,000
Rural health	113,475
Town and camp sanitation	4,075
Tuberculosis out-patient service	45,000
Communicable diseases	16,875
Venereal disease control	1,545
Laboratories	19,200
Crippled children	36,250
Promotion of child health: Maternal and child health; Public health nursing; Mouth hygiene	44,100
Vital statistics	38,890
State aid to local tuberculosis sanatoria	34,000
State tuberculosis sanatoria	320,505
Total	739,410

Publications issued by health department:
Monthly bulletin.
Annual report.
Pamphlets from time to time dealing with communicable diseases, sanitation, etc.

WASHINGTON STATE DEPARTMENT OF HEALTH

Board of health:
Donald G. Evans, M. D., C. P. H., director of health, chairman, Seattle.
Ralph Hendricks, M. D., Spokane.
Alexander Peacock, M. D., Seattle.
H. E. Wight, D. D. S., Yakima.
Francis D. Rhoads, secretary, Seattle.
Department of health:
Office of the director:
*Donald G. Evans, M. D., C. P. H., director of health, Seattle.
*R. H. Fletcher, M. D., assistant director, Seattle.
Division of public health nursing:
*Anna R. Moore, R. N., Seattle.
Division of health education:
*Charles Hilton, Seattle.
Division of laboratories:
*A. U. Simpson, M. D., Seattle.
Division of epidemiology:
*L. A. Dewey, M. D., C. P. H., Seattle.
Division of public health engineering:
*Roy M. Harris, C. E., Seattle.
Division of maternal and child hygiene:
*Percy F. Guy, M. D., Seattle.
Division of vital statistics:
*Francis D. Rhoads, State registrar, Seattle.
Appropriation for 2 years ending Mar. 31, 1939:
From general fund:

Salaries and wages	$120,000
Operations	65,407
Total	185,407

The above amount is exclusive of appropriation supplementary to grants from U. S. Public Health Service and the Children's Bureau.

WEST VIRGINIA DEPARTMENT OF HEALTH

Public health council:
Walter E. Vest, M. D., president, Huntington.
A. H. Hoge, M. D., Bluefield.
S. W. Price, M. D., Scarbro.
M. T. Morrison, M. D., Sutton.
B. H. Swint, M. D., Charleston.
W. C. D. McCuskey, M. D., Wheeling.
W. E. Minghini, D. D. S., Martinsburg.
Arthur E. McClue, M. D., ex officio secretary.
Executive health officer:
*Arthur E. McClue, M. D., commissioner of health, Charleston.
Division of sanitary engineering:
*E. S. Tisdale, chief engineer, Charleston.
*John B. Harrington, associate engineer, Charleston.
*A. J. Kranaskas, assistant engineer, Charleston.
*Kenneth Watson, assistant engineer, Charleston.
Bureau of industrial hygiene:
*John F. Cadden, M. D., director, Charleston.
*E. T. Roetman, engineer, Charleston.
Division of vital statistics:
*Franklin H. Reeder, M. D., director, Charleston.
Division of child hygiene:
*Thomas W. Nale, M. D., acting director, Charleston.
*Laurene C. Fisher, R. N., Charleston.
Bureau of venereal diseases:
*C. N. Scott, M. D., director, Charleston.
Bureau of county health work:
*A. M. Price, M. D., director, Charleston.
*H. K. Gidley, engineer, Charleston.
Bureau of public health education:
*Dorothea Campbell, director, Charleston.
Hygienic laboratory:
*Katherine E. Cox, director, Charleston.
*Margaret K. Riffe, serologist, Charleston.
*J. Roy Monroe, bacteriologist, Charleston.
*Mark Harp, bacteriologist, Charleston.
*Mary Prince Fowler, junior serologist, Charleston.
*David Dale Johnson, junior bacteriologist, Charleston.
*Guido Innarelli, junior bacteriologist, Charleston.
Appropriation for fiscal year ending June 30, 1938: For general use, $155,400.

WISCONSIN STATE BOARD OF HEALTH

Board of health:
J. J. Seelman, M. D., president, Milwaukee.
Wm. W. Kelly, M. D., president-elect, Green Bay.
Joseph Dean, M. D., vice president, Madison.
Mina B. Glasier, M. D., Bloomington.
Stephen Cahana, M. D., Milwaukee.
R. L. McCormack, M. D., Whitehall.
C. A. Harper, M. D., State health officer, Madison.
Executive health officer:
*C. A. Harper, M. D., State health officer, Madison
Assistant State health officer:
*Carl N. Neupert, M. D., Madison.
Venereal disease control officer and supervisor of public health service:
*Milton Trautmann, M. D., Madison.
Dental Education:
*F. A. Bull, D. D. S., supervisor.
Deputy State health officers:
*G. W. Henika, M. D., Madison.
*Geo. E. Hoyt, M. D., Elkhorn.
*V. A. Gudex, M. D., Fond du Lac.
*R. L. Frisbie, M. D., Rhinelander.
*F. P. Daly, M. D., Chippewa Falls.
District health officers:
*E. H. Jorris, M. D., Sparta.
*Allan Filek, M. D., Green Bay.
*John W. Lowe, M. D., Ashland.
*Leo M. Morse, M. D., Neillsville.
Bureau of vital statistics:
*C. A. Harper, M. D., State registrar, Madison.
*L. W. Hutchcroft, chief statistician, Madison.
*F. E. Koster, senior statistician, Madison.
Bureau of communicable diseases:
*H. M. Guilford, M. D., director, Madison.
*A. C. Edwards, M. D., senior epidemiologist, Madison.
Bureau of sanitary engineering:
*L. F. Warrick, State sanitary engineer, Madison.
*O. J. Muegge, assistant sanitary engineer, Madison.
*E. J. Beatty, assistant sanitary engineer, Madison.
*Frank J. McKee, assistant sanitary engineer, Madison.
*E. J. Tully, assistant chemical engineer, Madison.
*Franklin J. Summeril, assistant sanitary engineer, Madison (district).
*Alfred Steffen, assistant sanitary engineer, Elkhorn (district).
*Chester Obma, assistant sanitary engineer, Fond du Lac (district).
*Reginald C. Price, assistant sanitary engineer, Sparta (district).
*Gerry Halverson, assistant sanitary engineer, Neillsville (district).
*Theo. F. Wisniewski, assistant sanitary engineer, Green Bay (district).
*Alfred W. West, assistant sanitary engineer, Chippewa Falls (district).
*Charles L. Senn, assistant sanitary engineer, Rhinelander (district).
*Harold Kingsbury, assistant sanitary engineer, Ashland (district).
Bureau of education:
*John Culman, editor, Madison.
*Gertrude Pankow, illustrator, Madison.
Bureau of maternal and child health:
*Amy L. Hunter, M. D., chief, Madison.
*Frances A. Cline, M. D., child health physician, Rhinelander.
*Elizabeth Taylor, M. D., child health physician, Madison.
*Ruth B. Bennett, M. D., child health physician, Madison.
*Charlotte Fisk, M. D., child health physician, Madison.
*Bessie Mae Beach, M. D., child health physician, Madison.
*Grace M. Connors, R. N., public health nurse, Wautoma.
*Marie A. Skog, R. N., public health nurse, Sparta.
*Mildred Cook, R. N., public health nurse, Green Bay.
*Ruth B. Naset, R. N., instructor in maternity and child hygiene, Madison.
*Irene H. Narloch, R. N., assistant instructor in maternity and child hygiene, Madison.

Bureau of maternal and child health—Continued.
*Catherine Chambers, R. N., assistant instructor in maternity and child hygiene, Madison.
*Katheryn Lynch, R. N., assistant instructor in maternity and child hygiene, Madison.
*Dolly Bigler, R. N., assistant instructor in maternity and child hygiene, Madison.
Bureau of public health nursing:
*Cornelia van Kooy, R. N., supervisor, Madison.
*Martha R. Jenny, R. N., advisory public health nurse, Madison.
*Ione M. Rowley, R. N., advisory public health nurse, Madison.
*Sophia B. Paulus, R. N., public health nurse, Madison (district).
*Vera Roswell, R. N., public health nurse, Elkhorn (district).
*Gertrude Lorber, R. N., public health nurse, Fond du Lac (district).
*Mildred Knoebel, R. N., public health nurse, Sparta (district).
*Lila J. Johnson, R. N., public health nurse, Neillsville (district).
*Helen Grant, R. N., public health nurse, Green Bay.
*Agnes M. Grube, R. N., public health nurse, Rhinelander.
*Margaret Brunner, R. N., public health nurse, Chippewa Falls (district).
*Nellie McLaughlin, R. N., public health nurse, Indian Service, Wisconsin Rapids.
*Anne Beven, R. N., public health nurse, Indian Service, Ashland.
*Sadie Engesether, R. N., public health nurse, Indian Service, Hayward.
Bureau of nursing education:
*Barbara A. Thompson, R. N., director, Madison.
*Carrie May Dokken, R. N., acting supervisor, Madison.
Bureau of plumbing and domestic sanitary engineering:
*Frank R. King, State domestic sanitary engineer, Madison.
*Louis T. Watry, well drilling supervisor, Madison.
Bureau of social hygiene:
*H. M. Guilford, M. D., director, Madison.
*Aimee Zillmer, lecturer, Madison.
*Dwight M. Warner, lecturer, Madison.
*Ruth J. Larsen, lecturer, Madison.
*Susan B. Mitchell, R. N., venereal clinic nurse, Madison.
*Leona Ludwig, venereal clinic nurse, Janesville.
*Irene Ryss, R. N., venereal clinic nurse, Oshkosh.
*Margaret Gebhardt, R. N., venereal clinic nurse, La Crosse.
*Pauline Carrington, R. N., venereal clinic nurse, Superior.
*Doris Fink, R. N., venereal clinic nurse, Racine,
Paul C. Gatterdam, M. D., venereal clinic physician, La Crosse.
Charles W. Giesen, M. D., venereal clinic physician, Superior.
C. R. Gilbertsen, M. D., venereal clinic physician, Janesville.
F. H. Frey, M. D., venereal clinic physician, Wausau.
C. G. Richards, M. D., venereal clinic physician, Kenosha.
Joseph C. Dean, M. D., venereal clinic physician, Madison.
Earl F. Cummings, M. D., venereal clinic physician, Oshkosh.
Laboratory service:
*W. D. Stovall, M. D., director, State laboratories, Madison.
*M. S. Nichols, chemist, State laboratory, Madison.

Laboratory service—Continued.
*Anna Brandsmark, director, branch laboratory, Rhinelander.
*Mildred Jacobson, director, cooperative laboratory, Beloit.
*Marjorie Bates, director, cooperative laboratory, Oshkosh.
*Henry Miller, director, cooperative laboratory, Kenosha.
*Josephine Foote, director, cooperative laboratory, Wausau.
*Martha Thompson, director, cooperative laboratory, Superior.
*Clarissa McFetridge, director, cooperative laboratory, Green Bay.
*Elizabeth Mathewson, director, cooperative laboratory, Sheboygan.
*Bernice Messerschmidt, director, cooperative laboratory, La Crosse.
Industrial hygiene:
*Paul A. Brehm, M. D., supervisor, Madison.
*Harold W. Ruf, sanitary engineer, Madison.
*William Z. Fluck, chemical engineer, Madison.
Appropriations for each of fiscal years ending June 30, 1938, and 1939:

General administration	$155,000
Bureau of maternal and child health, and public health nursing	43,350
Enforcement of medical practices act	2,500
Specific appropriations	200,850

To each county employing a county public health nurse, $1,000 per annum.
Licensing:
95 percent of the receipts, estimated at:

Embalmers	$8,300
Hotels and restaurants	36,000
Barbers	21,000
Plumbers	22,400
Beauty parlors	25,400
Nurses	15,200

(NOTE.—7 percent of the above estimated receipts, or $3,981, to be allotted to general administration for overhead.)
90 percent of the receipts, estimated at:

Well drillers	3,735
Estimated appropriations	132,035

Publications issued by health department:
Quarterly bulletin.
Biennial report.
Other bulletins on communicable diseases.

WYOMING DEPARTMENT OF PUBLIC HEALTH

Board of health:
Earl Whedon, M. D., president, Sheridan.
E. W. DeKay, M. D., Laramie.
N. E. Morad, M. D., Casper.
J. R. Newnam, M. D., Kemmerer.
G. M Anderson, M. D., secretary and executive officer, Cheyenne.
Executive health officer:
*G. M. Anderson, M. D., State health officer, Cheyenne.
Appropriations for biennial period ending Mar. 31, 1939:

State board of health	$11,000
Salary of secretary	8,000
Maternal and infant welfare	6,850
Bureau of vital statistics	3,880
Total	29,730

DEATHS DURING WEEK ENDED JULY 23, 1938

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended July 23, 1938	Corresponding week, 1937
Data from 88 large cities of the United States:		
Total deaths	7,281	[1] 7,380
Average for 3 prior years	[1] 9,512	
Total deaths, first 29 weeks of year	244,203	267,255
Deaths under 1 year of age	521	[1] 577
Average for 3 prior years	[1] 575	
Deaths under 1 year of age, first 29 weeks of year	15,399	16,884
Data from industrial insurance companies:		
Policies in force	69,062,540	70,056,862
Number of death claims	10,681	11,684
Death claims per 1,000 policies in force, annual rate	8.1	8.7
Death claims per 1,000 policies, first 29 weeks of year, annual rate	9.5	10.4

[1] Data for 86 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

In these and the following tables, a zero (0) indicates a positive report and has the same significance as any other figures, while leaders (------) represent no report, with the implication that cases or deaths may have occurred but were not reported to the State health officer.

Cases of certain diseases reported by telegraph by State health officers for the week ended July 30, 1938, rates per 100,000 population (annual basis), and comparison with corresponding week of 1937 and 5-year median

Division and State	Diphtheria				Influenza				Measles			
	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median
NEW ENGLAND												
Maine	6	1	0	0	73	12	------	------	97	16	5	12
New Hampshire	10	1	0	0	------	------	------	------	10	1	4	4
Vermont	0	0	1	0	------	------	------	------	163	12	5	7
Massachusetts	2	2	6	8	------	------	------	------	101	86	66	105
Rhode Island	0	0	0	1	------	------	------	------	31	4	6	5
Connecticut	9	3	3	3	12	4	1	------	54	18	10	32
MIDDLE ATLANTIC												
New York	6	16	29	27	[1] 1	[1] 1	[1] 4	[1] 1	192	478	314	314
New Jersey [2]	8	7	4	8	2	2	2	2	67	56	125	125
Pennsylvania	7	13	9	16	------	------	------	------	43	83	249	242
EAST NORTH CENTRAL												
Ohio	21	27	22	22	------	------	10	10	82	106	534	226
Indiana	9	6	9	10	5	3	------	15	12	8	31	20
Illinois [2]	23	31	20	21	7	10	5	6	24	36	169	161
Michigan [2]	8	7	10	10	------	------	------	1	244	226	128	87
Wisconsin	9	5	0	3	34	19	9	10	451	253	21	52
WEST NORTH CENTRAL												
Minnesota	0	0	3	3	2	1	------	1	126	64	------	24
Iowa	8	4	4	4	------	------	1	------	104	51	8	8
Missouri	3	2	6	10	35	27	44	8	10	8	14	21
North Dakota	7	1	0	0	59	8	------	------	177	24	1	20
South Dakota	8	1	1	0	------	------	------	------	------	------	1	1
Nebraska	0	0	0	1	------	------	------	------	31	8	5	5
Kansas	14	5	3	3	------	------	2	2	42	15	9	12

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended July 30, 1938, rates per 100,000 population (annual basis), and comparison with corresponding week of 1937 and 5-year median—Continued

Division and State	Diphtheria				Influenza				Measles			
	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median
SOUTH ATLANTIC												
Delaware	0	0	0	0					20	1	1	1
Maryland [2 3 4]	25	8	9	5	6	2		1	37	12	6	11
Dist. of Col. [3]	23	4	1	2	8	1			25	3	6	5
Virginia [3]	8	4	5	7					112	58	55	55
West Virginia	11	4	3	10	28	10	9	8	53	19	30	21
North Carolina [3 4]	30	20	12	13	9	6		1	181	121	62	51
South Carolina [4]	6	2	5	4	184	66	40	40	25	9	6	6
Georgia [4]	19	11	5	10								
Florida [4]	9	3	6	6				1	28	9		1
EAST SOUTH CENTRAL												
Kentucky	9	5	8	6	4	2	1		27	15	51	35
Tennessee [3 4]	9	5	4	6	13	7	3	6	9	5	21	19
Alabama [4]	31	17	12	11	31	17	12	3	88	49	8	10
Mississippi [3]	28	11	9	9								
WEST SOUTH CENTRAL												
Arkansas	31	12	11	3	38	15	7	3	10	4	2	2
Louisiana [4]	34	14	7	8	15	6	16	9	10	4		6
Oklahoma	6	3	4	4	39	19	5	5	70	34	3	3
Texas [4]	20	24	22	33	43	51	55	26	14	16	66	60
MOUNTAIN												
Montana [3]	0	0	0	1					164	17	10	10
Idaho [3]	0	0	1	0	42	4	6	2	222	21	4	2
Wyoming [3]	0	0	0	1					111	5	1	7
Colorado [3]	29	6	6	4					102	21	32	12
New Mexico	25	2	3	3			1		25	2	22	17
Arizona	13	1	0	1	202	16	15	2	329	26	1	2
Utah [3]	30	3	0	0					321	32	22	7
PACIFIC												
Washington	3	1	1	1					50	16	16	31
Oregon	0	0	0	0	46	9	8	9	76	15	4	15
California	15	18	22	26	10	12	10	10	233	275	36	155
Total	13	313	286	354	17	330	266	251	96	2,342	2,170	2,170
30 weeks	18	13,410	12,811	16,969	75	45,046	273,800	141,130	1,034	756,518	238,001	338,679

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median
NEW ENGLAND												
Maine	0	0	0	0	0	0	3	1	30	5	1	9
New Hampshire	0	0	0	0	0	0	2	0	10	1	4	4
Vermont	0	0	0	0	0	0	0	0	68	5	1	3
Massachusetts	2.4	2	0	2	4	3	13	9	57	48	32	47
Rhode Island	0	0	1	0	8	1	0	0	31	4	2	2
Connecticut	0	0	0	0	3	1	2	2	42	14	10	10

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended July 30, 1938, rates per 100,000 population (annual basis), and comparison with corresponding week of 1937 and 5-year median—Continued

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median
MIDDLE ATLANTIC												
New York	2	5	4	7	2	5	11	11	28	69	93	112
New Jersey [3]	2.4	2	3	0	0	0	5	4	19	16	15	26
Pennsylvania	0.5	1	4	6	0	0	6	4	25	48	62	106
EAST NORTH CENTRAL												
Ohio	0	0	5	3	4	5	48	6	58	75	117	110
Indiana	0	0	3	2	0	0	15	2	23	15	21	21
Illinois [3]	1.9	3	4	4	1.9	3	26	7	50	75	91	89
Michigan [3]	1.1	1	1	1	2.2	2	10	6	85	79	138	76
Wisconsin	5	3	0	0	0	0	2	1	100	56	54	54
WEST NORTH CENTRAL												
Minnesota	0	0	1	0	0	0	1	1	57	29	19	19
Iowa	0	0	3	2	2	1	3	1	37	18	25	19
Missouri	1.3	1	0	0	1.3	1	16	1	17	13	34	18
North Dakota	0	0	0	0	0	0	0	0	66	9	6	6
South Dakota	8	1	0	0	15	2	0	0	60	8	3	3
Nebraska	0	0	0	1	0	0	11	0	4	1	10	10
Kansas	0	0	1	1	3	1	7	2	84	30	17	17
SOUTH ATLANTIC												
Delaware	0	0	0	0	0	0	0	0	20	1	0	0
Maryland [2] [4]	0	0	3	0	0	0	7	1	37	12	10	13
District of Columbia [2]	0	0	0	1	0	0	1	0	25	3	6	5
Virginia [2]	1.9	1	2	2	8	4	5	1	21	11	11	18
West Virginia	2.8	1	5	0	0	0	4	2	36	13	15	15
North Carolina [2] [4]	1.5	1	0	0	3	2	6	1	21	14	19	17
South Carolina [4]	2.8	1	0	0	6	2	1	1	3	1	2	3
Georgia [4]	0	0	0	0	5	3	2	2	15	9	10	5
Florida [4]	0	0	2	0	3	1	1	1	3	1	1	1
EAST SOUTH CENTRAL												
Kentucky	7	4	3	3	1.8	1	33	10	16	9	6	13
Tennessee [2] [4]	1.8	1	1	1	1.8	1	6	7	23	13	16	10
Alabama [4]	1.8	1	11	2	13	7	1	2	18	10	6	8
Mississippi [3]	0	0	0	0	2.6	1	13	2	10	4	5	5
WEST SOUTH CENTRAL												
Arkansas	0	0	0	0	8	3	20	0	13	5	4	3
Louisiana [4]	0	0	0	1	7	3	5	1	17	7	5	5
Oklahoma	0	0	2	1	0	0	28	0	14	7	13	10
Texas [4]	0.8	1	2	2	1.7	2	42	1	17	20	21	21
MOUNTAIN												
Montana [3]	0	0	0	0	0	0	0	0	48	5	15	1
Idaho [3]	0	0	0	0	0	0	0	0	21	2	8	3
Wyoming [3]	0	0	0	0	0	0	1	1	22	1	0	4
Colorado [3]	0	0	2	0	0	0	2	0	97	20	6	7
New Mexico	0	0	0	0	0	0	0	1	37	3	3	4
Arizona	0	0	0	0	0	0	1	0	38	3	4	1
Utah [3]	0	0	0	0	0	0	0	0	111	11	5	5
PACIFIC												
Washington	0	0	2	1	0	0	0	0	41	13	14	14
Oregon	0	0	0	0	0	0	1	0	30	6	4	16
California	0.8	1	5	5	4	5	34	21	53	62	56	67
Total	1.3	31	70	67	2.4	60	401	257	36	884	1,020	1,020
30 weeks	2.7	2,039	3,991	3,946	1	728	2,071	1,897	181	134,728	162,236	162,236

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended July 30, 1938, rates per 100,000 population (annual basis), and comparison with corresponding week of 1937 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough	
	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases
NEW ENGLAND										
Maine	0	0	0	0	12	2	5	2	189	31
New Hampshire	0	0	0	0	10	1	0	0	----	----
Vermont	0	0	0	0	14	1	0	1	422	31
Massachusetts	0	0	0	0	1.2	1	5	4	108	92
Rhode Island	0	0	0	0	23	3	0	0	----	----
Connecticut	0	0	0	0	6	2	4	2	216	72
MIDDLE ATLANTIC										
New York	0	0	0	0	8	20	12	14	229	570
New Jersey [2]	0	0	0	0	7	6	2	2	353	294
Pennsylvania	0	0	0	0	8	15	28	21	91	177
EAST NORTH CENTRAL										
Ohio	0.8	1	3	0	5	7	25	25	292	377
Indiana	14	9	6	0	26	17	8	15	27	18
Illinois [2]	3	5	4	2	13	19	18	25	306	463
Michigan [2]	1.1	1	1	1	5	5	11	11	475	440
Wisconsin	0	0	3	3	4	2	1	2	601	337
WEST NORTH CENTRAL										
Minnesota	18	9	12	3	0	0	0	0	63	32
Iowa	6	3	20	5	8	4	8	2	37	18
Missouri	5	4	0	0	14	11	30	25	20	15
North Dakota	37	5	1	1	7	1	1	1	355	48
South Dakota	15	2	0	1	0	0	4	2	90	12
Nebraska	0	0	0	0	0	0	1	1	34	9
Kansas	0	0	1	1	6	2	7	7	182	65
SOUTH ATLANTIC										
Delaware	0	0	0	0	60	3	0	0	60	3
Maryland [2 3 4]	0	0	0	0	19	6	18	15	75	24
District of Columbia [2]	0	0	0	0	8	1	6	4	33	4
Virginia [2]	0	0	0	0	75	39	37	37	179	93
West Virginia	0	0	3	0	28	10	12	22	78	28
North Carolina [2 4]	0	0	0	0	28	19	21	33	297	199
South Carolina [4]	0	0	0	0	44	16	15	25	85	31
Georgia [4]	0	0	0	0	78	46	35	35	95	56
Florida [4]	0	0	0	0	6	2	1	2	28	9
EAST SOUTH CENTRAL										
Kentucky	1.8	1	0	0	66	37	45	39	96	54
Tennessee [2 4]	1.8	1	0	0	50	28	38	52	36	20
Alabama [4]	1.8	1	0	0	32	18	5	31	56	31
Mississippi [2]	0	0	2	0	39	15	25	16	----	----
WEST SOUTH CENTRAL										
Arkansas	15	6	0	0	94	37	38	29	43	17
Louisiana [4]	0	0	0	0	56	23	32	32	100	41
Oklahoma	10	5	0	0	70	34	32	33	123	60
Texas [4]	7	8	0	0	66	78	72	72	106	126
MOUNTAIN										
Montana [2]	19	2	25	3	29	3	1	2	822	84
Idaho [2]	32	3	2	1	63	6	1	0	85	8
Wyoming [2]	0	0	0	0	0	0	0	0	178	8
Colorado [4]	10	2	0	0	19	4	5	5	263	54
New Mexico	12	1	0	0	49	4	5	6	235	19
Arizona	13	1	0	0	0	0	3	1	202	16
Utah [2]	0	0	0	0	121	12	0	0	713	71

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended July 30, 1938, rates per 100,000 population (annual basis), and comparison with corresponding week of 1937 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough	
	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases	July 31, 1937, cases	1933–1937 median	July 30, 1938, rate	July 30, 1938, cases
PACIFIC										
Washington	21	29	4	4	9	3	5	3	157	50
Oregon	30	6	6	3	30	6	2	5	127	25
California	24	28	9	1	11	13	16	10	193	228
Total	5	133	102	55	23	582	640	669	182	4,430
30 weeks	17	12,526	7,795	5,221	9	6,400	6,126	6,914	178	130,272

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended July 30, 1938, 25 cases as follows: New Jersey, 2; Illinois, 2; Maryland, 1; District of Columbia, 1; Virginia, 11; North Carolina, 2; Tennessee, 3; Montana, 1; Idaho, 2.
[3] Period ended earlier than Saturday.
[4] Typhus fever, week ended July 30, 1938, 60 cases as follows: Maryland, 1; North Carolina, 2; South Carolina, 2; Georgia, 24; Florida, 1; Tennessee, 1; Alabama, 15; Louisiana, 1; Texas, 13.
[5] Colorado tick fever, week ended July 30, 1938, 6 cases as follows: Wyoming, 2; Colorado, 4.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningitis, meningococcus	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June 1938										
California	12	149	410	10	3,945	16	9	692	123	56
Colorado	0	71	118	1	491	----	1	145	10	19
Kansas	3	13	2	1	661	----	0	123	52	8
Louisiana	5	32	39	105	63	35	13	26	1	72
Massachusetts	4	5	----	----	2,216	2	1	1,164	0	2
Montana	1	2	23	----	274	----	1	33	35	6
Nevada	0	0	----	----	16	----	0	6	0	0
Oklahoma	3	15	87	79	422	59	3	63	77	45
Oregon	3	10	69	----	200	----	0	77	62	2
South Dakota	1	3	3	----	42	----	3	24	51	4
Texas	6	102	642	229	371	313	3	208	78	148
Virginia	8	24	153	17	1,235	14	4	69	0	39
Washington	0	3	9	----	116	----	0	78	64	12
Wisconsin	3	8	77	----	8,630	----	1	373	12	7

Summary of monthly reports from States—Continued

June 1938

	Cases
Actinomycosis:	
Oregon	1
Anthrax:	
Massachusetts	1
South Dakota	1
Chickenpox:	
California	2,666
Colorado	219
Kansas	90
Louisiana	8
Massachusetts	1,286
Montana	87
Nevada	7
Oklahoma	51
Oregon	177
South Dakota	46
Texas	423
Virginia	132
Washington	415
Wisconsin	1,338
Colorado tick fever:	
Colorado	31
Conjunctivitis:	
Oklahoma	2
Dengue:	
Texas	13
Dysentery:	
California (amoebic)	15
California (bacillary)	30
Colorado (amoebic)	1
Kansas (bacillary)	3
Louisiana (amoebic)	2
Louisiana (bacillary)	6
Massachusetts (bacillary)	38
Oklahoma (amoebic)	2
Oklahoma (bacillary)	12
Virginia (diarrhea included)	754
Texas (amoebic)	6
Texas (bacillary)	123
Encephalitis, epidemic or lethargic:	
California	1
Colorado	1
Kansas	2
Massachusetts	2
Oregon	2
Texas	1
Washington	2
Wisconsin	3
Food poisoning:	
California	121
German measles:	
California	122
Kansas	3
Massachusetts	79
Washington	10
Wisconsin	51
Granuloma, coccidioidal:	
California	7
Hookworm disease:	
Louisiana	29
Oklahoma	2
Impetigo contagiosa:	
Montana	4
Oregon	28
Washington	1
Jaundice, epidemic:	
California	9
Oregon	1
Lead poisoning:	
Massachusetts	2
Leprosy:	
Louisiana	1
Mumps:	
California	2,923
Colorado	47
Kansas	199
Louisiana	3
Massachusetts	877
Montana	16
Nevada	4
Oklahoma	6
Oregon	72
South Dakota	23
Texas	289
Virginia	143
Washington	255
Wisconsin	729
Ophthalmia neonatorum:	
California	2
Massachusetts	83
Oklahoma	2
Paratyphoid fever:	
California	6
Kansas	1
Louisiana	2
Massachusetts	2
Texas	5
Rabies in animals:	
California	146
Louisiana	16
Massachusetts	5
Oregon	4
Texas	11
Washington	29
Rocky Mountain spotted fever:	
California	4
Colorado	1
Massachusetts	1
Montana	2
Nevada	1
Oklahoma	1
Oregon	8
Virginia	7
Washington	1
Scabies:	
Oregon	14
Septic sore throat:	
California	18
Colorado	2
Kansas	2
Louisiana	11
Massachusetts	17
Montana	7
Oklahoma	28
Septic sore throat—Con.	
Oregon	13
South Dakota	1
Virginia	8
Washington	3
Wisconsin	9
Tetanus:	
California	5
Kansas	1
Louisiana	4
Massachusetts	3
Oklahoma	2
Virginia	2
Washington	1
Trachoma:	
California	25
Kansas	1
Montana	4
Trichinosis:	
California	5
South Dakota	1
Tularaemia:	
California	3
Kansas	2
Louisiana	12
Oklahoma	5
Texas	9
Virginia	2
Wisconsin	3
Typhus fever:	
California	1
Louisiana	2
Oklahoma	1
Texas	35
Undulant fever:	
California	20
Kansas	24
Louisiana	6
Massachusetts	4
Montana	1
Oklahoma	91
Texas	42
Virginia	5
Washington	5
Wisconsin	27
Vincent's infection:	
Kansas	18
Oregon	13
Washington	3
Whooping cough:	
California	1,862
Colorado	145
Kansas	592
Louisiana	180
Massachusetts	477
Montana	199
Nevada	4
Oklahoma	285
Oregon	131
South Dakota	38
Texas	1,334
Virginia	439
Washington	339
Wisconsin	868

PLAGUE INFECTION IN GROUND SQUIRRELS IN SAN BERNARDINO COUNTY, CALIFORNIA

Under date of July 30, 1938, Doctor W. M. Dickie, Director of Public Health of California, reported that plague infection had been proved by animal inoculation in 5 ground squirrels (*Otospermophilus grammurus fisheri*), collected on July 20, 1938, from the South Fork Public Camp, San Bernardino County, California.

PLAGUE INFECTION IN FLEAS FROM GROUND SQUIRRELS IN BEAR LAKE COUNTY, IDAHO

Under date of July 29, 1938, Senior Surg. C. R. Eskey reported plague infection proved in a pool of 280 fleas from 99 ground squirrels (C. armatus) shot July 15 at a distance of ½ to 2 miles west of Border, Bear Lake County, Idaho.

PLAGUE INFECTION IN FLEAS FROM GROUND SQUIRRELS IN RICH COUNTY, UTAH

Under date of July 29, 1938, Senior Surg. C. R. Eskey reported plague infection proved in a pool of 125 fleas from 80 ground squirrels (*C. armatus*) shot July 1, 1938, 2 to 3 miles southeast of Woodruff, Rich County, Wyo.

PLAGUE INFECTION IN FLEAS AND LICE FROM PRAIRIE DOGS, FLEAS FROM MARMOTS, AND IN FLEAS, LICE, AND TISSUE FROM GROUND SQUIRRELS IN WYOMING

Under date of July 29, 1938, Senior Surg. C. R. Eskey reported plague infection found in Wyoming as follows:

In a pool of 15 fleas and a separate pool of 19 lice collected from 26 prairie dogs (*Cyn. leucurus*), shot July 18, 16 to 20 miles south of Kemmerer, Uinta County, Wyo.

In ground squirrels and in pools of fleas and lice collected ½ to 2 miles north of Hamsfork, Lincoln County, Wyoming, as follows:

Tissue from 1 *Citellus armatus* found dead July 19; in tissue from 1 *C. armatus* shot July 18; in tissue from 1 *C. armatus* shot July 19; in a pool of 187 fleas from 60 *C. armatus* shot July 19; in a pool of 88 fleas from 42 *C. armatus* shot July 19; in a pool of 111 fleas from 47 *C. armatus* shot July 19; in a pool of 31 lice from the above-listed 149 *C. armatus*; and in a pool of 122 fleas from 54 *C. armatus* shot July 20.

In animal tissue and in pools of fleas from ground squirrels and marmots collected 1 to 14 miles from Cokeville, Lincoln County, Wyoming, as follows:

In a pool of 251 fleas from 77 *Citellus armatus* shot July 7; in tissue from 1 *C. armatus* found dead July 9; in tissue from 1 *C. armatus* picked up sick July 9; in tissue from 1 *C. armatus* shot July 11; in a pool of 45 fleas from 2 *Marmota flaviventris* shot July 12; in a pool of 59 fleas from 58 *C. elegans* shot July 20 and in tissue from 1 *C. armatus* shot July 22.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 23, 1938

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	112	35	14	1,035	317	393	6	380	76	1,338	----
Current week [1]	78	28	6	867	245	271	3	320	50	1,941	----
Maine:											
Portland	0	----	0	2	0	0	0	0	0	0	21
New Hampshire:											
Concord	0	----	0	0	0	0	0	0	0	0	6
Manchester	0	----	0	0	1	0	0	0	0	0	18
Nashua	0	----	0	0	0	0	0	0	1	0	9
Vermont:											
Barre	0	----	0	0	0	0	0	0	0	0	3
Burlington	0	----	0	0	0	0	0	0	0	4	9
Rutland	0	----	0	0	0	0	0	0	0	0	9
Massachusetts:											
Boston	0	----	0	56	12	15	0	12	0	20	174
Fall River	0	----	0	0	1	1	0	1	0	3	25
Springfield	0	----	0	21	0	0	0	1	0	4	39
Worcester	0	----	0	0	3	3	0	2	0	6	40
Rhode Island:											
Pawtucket	0	----	0	1	0	0	0	0	0	0	11
Providence	0	----	0	0	1	8	0	1	1	5	49
Connecticut:											
Bridgeport	0	----	0	1	1	0	0	1	0	1	28
Hartford	0	----	0	0	5	3	0	2	0	1	34
New Haven	0	1	0	1	1	0	0	0	1	10	24
New York:											
Buffalo	0	----	0	2	3	6	0	7	0	36	113
New York	8	2	1	240	45	17	0	72	7	358	1,320
Rochester	0	----	0	11	4	3	0	0	0	8	53
Syracuse	0	----	0	30	1	3	0	0	0	22	43
New Jersey:											
Camden	0	----	0	1	3	3	0	0	0	12	27
Newark	0	----	0	4	0	1	0	8	0	58	88
Trenton	0	----	0	0	1	0	0	4	2	2	32
Pennsylvania:											
Philadelphia	4	----	0	30	12	15	0	17	2	103	396
Pittsburgh	2	----	0	2	7	12	0	7	2	32	116
Reading	1	----	0	0	1	0	0	0	0	3	14
Scranton	1	----	----	2	----	0	0	----	0	2	----
Ohio:											
Cincinnati	6	----	0	1	4	4	0	7	1	14	128
Cleveland	1	1	0	48	3	8	0	11	0	101	145
Columbus	0	----	0	0	2	0	0	0	0	0	87
Toledo	0	----	0	3	0	5	0	3	0	27	60
Indiana:											
Anderson	0	----	0	0	0	0	0	0	0	0	8
Fort Wayne	0	----	0	1	2	0	0	1	0	0	20
Indianapolis	0	----	0	5	3	2	1	3	0	2	92
South Bend	0	----	0	0	0	0	0	0	0	0	16
Terre Haute	1	----	0	0	0	0	0	0	2	0	21
Illinois:											
Alton	0	----	0	0	0	0	0	0	0	1	5
Chicago	4	3	1	16	18	45	0	43	1	322	601
Elgin	0	----	0	0	0	1	0	0	0	2	10
Moline	0	----	0	0	0	1	0	0	0	2	2
Springfield	0	----	0	0	0	1	0	0	0	3	12
Michigan:											
Detroit	4	----	0	11	5	23	0	12	0	241	263
Flint	0	----	0	6	3	8	0	2	0	6	28
Grand Rapids	0	----	0	26	1	2	0	0	0	0	36
Wisconsin:											
Kenosha	0	----	0	3	0	1	0	0	0	8	5
Madison	0	----	0	15	5	0	0	0	0	3	26
Milwaukee	0	----	0	2	4	3	0	0	0	157	86
Racine	0	----	0	0	0	5	0	0	1	20	17
Superior	0	----	0	1	0	0	0	0	0	0	10
Minnesota:											
Duluth	0	----	0	24	1	6	0	0	0	32	26
Minneapolis	2	----	0	16	3	2	0	1	0	3	92
St. Paul	0	----	0	6	2	1	0	2	0	8	60

[1] Figures for Salt Lake City, Utah, estimated; report not received.

City reports for week ended July 23, 1938—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Iowa:											
Cedar Rapids	0			5		0	0		0	4	
Davenport	0			0		0	0		0	0	
Des Moines	0		0	2	0	2	0	0	0	1	26
Sioux City	0			22		0	0		0	9	
Waterloo	0			1		5	0		0	1	
Missouri:											
Kansas City	0		0	0	2	4	0	4	0	0	88
St. Joseph	0		0	0	2	0	0	0	0	0	34
St. Louis	1		0	0	6	2	0	5	2	3	196
North Dakota:											
Fargo	0		0	2	0	0	0	0	0	2	9
Grand Forks	0			0		0	0		0	0	
Minot	0		0	4	0	0	0	0	0	0	7
South Dakota:											
Aberdeen	1			0		0	0		0	5	
Nebraska:											
Lincoln	0			3		2	0		0	13	
Omaha	0		0	4	2	0	0	1	0	0	59
Kansas:											
Lawrence	0		0	0	0	0	0	0	0	0	1
Topeka	1		0	2	1	0	0	0	1	15	11
Wichita	0		0	4	4	0	1	0	0	1	19
Delaware:											
Wilmington	0		0	1	0	0	0	1	0	4	26
Maryland:											
Baltimore	1	4	0	13	6	1	0	9	0	34	191
Cumberland	0		0	0	0	0	0	0	0	0	6
Frederick	0		0	0	0	0	0	0	1	0	4
Dist. of Col.:											
Washington	13		0	7	6	1	0	4	3	13	154
Virginia:											
Lynchberg	2		0	0	1	1	0	0	1	2	8
Norfolk	0	1	0	0	1	0	0	2	0	1	22
Richmond	0		0	15	1	3	0	5	5	2	57
Roanoke	0		0	0	0	0	0	0	0	8	16
West Virginia:											
Charleston	0		0	0	0	0	0	0	0	1	12
Huntington	0			0		0	0		0	0	
Wheeling	0		0	1	0	0	0	0	0	2	18
North Carolina:											
Gastonia	0			0		0	0		0	1	
Raleigh	0		0	0	0	0	0	0	0	6	12
Wilmington	0		0	0	0	0	0	0	1	8	11
Winston-Salem	0		0	20	0	0	0	3	0	2	16
South Carolina:											
Charleston	0		0	1	2	2	0	0	1	0	16
Florence	0		0	0	1	0	0	0	0	0	6
Greenville	0		0	1	1	0	0	0	0	0	7
Georgia:											
Atlanta	1	4	2	0	3	2	0	2	0	6	80
Brunswick	0		0	0	0	0	0	0	0	0	3
Savannah	0	2	0	3	1	0	0	2	1	9	36
Florida:											
Miami	1		0	0	2	1	0	3	0	9	33
Tampa	0		0	2	1	1	0	1	0	0	21
Kentucky:											
Ashland	0		0	0	0	0	0	0	1	1	4
Covington	0		0	0	1	0	0	0	0	4	13
Lexington	0		0	0	2	0	0	2	0	0	24
Louisville	0		0	7	1	3	0	6	0	4	63
Tennessee:											
Knoxville	2		0	0	0	0	0	0	2	1	28
Memphis	0		0	1	2	2	0	3	3	8	86
Nashville	0		0	0	4	0	0	2	1	11	60
Alabama:											
Birmingham	0	2	0	0	2	0	0	3	1	0	68
Mobile	0	1	0	0	1	0	0	0	0	0	13
Montgomery	2			0	1	0	0		1	0	
Arkansas:											
Fort Smith	0			2		1	0		1	0	
Little Rock	0			0		0	0		0	0	

City reports for week ended July 23, 1938—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Louisiana:											
Lake Charles	0		0	0	0	0	0	0	0	0	6
New Orleans	7	1	2	2	11	3	0	6	5	43	132
Shreveport	2		0	0	2	0	0	0	0	0	37
Oklahoma:											
Muskogee	0			0		0	0		0	1	
Oklahoma City	0		0	0	4	2	0	1	2	2	30
Tulsa	0			2		0	1		1	2	
Texas:											
Dallas	2		0	2	0	2	0	3	0	0	53
Fort Worth	0		0	0	0	0	0	1	0	6	23
Galveston	0		0	0	2	0	0	2	0	1	18
Houston	0	1	0	0	0	1	0	4	0	2	92
San Antonio	1		0	0	4	0	0	11	2	5	63
Montana:											
Billings	0		0	0	2	1	0	0	0	8	10
Great Falls	0		0	0	0	0	0	0	0	10	8
Helena	0			1		0	0		0	1	
Missoula	0		0	0	0	0	0	0	0	0	2
Idaho:											
Boise	0		0	0	0	2	0	0	0	0	7
Colorado:											
Colorado Springs	0		0	0	0	2	0	0	0	7	10
Denver	5		0	4	2	5	0	5	0	24	57
Pueblo	0		0	6	0	2	0	1	0	8	7
New Mexico:											
Albuquerque	0		0	0	1	1	0	2	0	2	16
Utah:											
Salt Lake City											
Washington:											
Seattle	0		0	5	5	2	0	2	1	11	94
Spokane	0		0	2	1	0	0	1	0	11	29
Tacoma	0		0	0	1	0	1	0	0	2	32
Oregon:											
Portland	0	3	0	1	2	3	0	2	0	9	82
Salem	0			0		1	0		0	0	
California:											
Los Angeles	9	6		34	9	17	0	15	1	33	305
Sacramento	0		0	5	1	3	0	3	0	13	27
San Francisco	0		0	6	5	9	0	5	0	21	136

State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths	
Connecticut:			
Hartford	0	0	1
New Haven	1	0	0
New York:			
Buffalo	1	0	0
New York	1	1	2
Ohio:			
Cleveland	0	0	1
Columbus	0	0	1
Indiana:			
Indianapolis	1	1	0
Illinois:			
Chicago	0	0	1
Michigan:			
Detroit	0	0	2
Flint	0	0	3
Nebraska:			
Omaha	0	0	1
Maryland:			
Baltimore	1	1	0
Tennessee:			
Memphis	0	0	2
Alabama:			
Birmingham	1	0	1
Arkansas:			
Little Rock	0	0	1
Louisiana:			
New Orleans	2	1	3
Texas:			
Dallas	1	1	0

Encephalitis, epidemic or lethargic.—Cases: New York, 2; St. Louis, 1.
Pellagra.—Cases: Baltimore, 2; Charleston, S. C., 3; Atlanta, 3; Savannah, 5; Tampa, 1; Louisville, 3; Fort Smith, 2.
Typhus fever.—Cases: Charleston, S. C., 1; Atlanta, 1; Savannah, 1; Tampa, 1; Houston, 1.

FOREIGN AND INSULAR

FINLAND

Communicable diseases—June 1938.—During the month of June 1938, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	149	Scarlet fever	759
Influenza	2,123	Typhoid fever	21
Paratyphoid fever	16	Undulant fever	2
Poliomyelitis	12		

MEXICO

Deaths from certain diseases—1934–36.—The following figures are taken from the *Boletín Epidemiológico* for June 1938, published by the Department of Public Health of Mexico. While the reporting of deaths from communicable diseases in Mexico is admittedly incomplete, efforts have been made to improve reporting, and it is stated that there has been a marked increase in the notification of deaths during recent years.

Disease	1934	1935	1936	Disease	1934	1935	1936
Diphtheria	1,337	1,303	1,440	Smallpox	9,430	5,205	4,627
Dysentery	11,474	10,887	11,315	Syphilis	2,229	2,266	2,315
Influenza	4,312	5,780	4,642	Tuberculosis, pulmonary	6,916	7,242	7,339
Malaria	24,491	22,784	24,496	Tuberculosis, other forms	2,636	2,802	2,737
Measles	15,748	9,351	12,645	Typhoid fever	4,441	4,666	4,823
Puerperal diseases	570	639	698	Typhus fever	1,851	1,488	1,490
Scarlet fever	424	468	511	Whooping cough	20,199	11,787	9,216

Estimated population, 1936, approximately 18,000,000.

Communicable diseases—1937.—While the reporting of cases of communicable diseases in Mexico is said to be even more incomplete than that of deaths, the following figures for 1937, taken from the *Boletín Epidemiológico*, show the trend of these diseases and indicate the extent of the communicable disease problem.

Disease	Cases	Disease	Cases
Anthrax	408	Poliomyelitis	26
Cerebrospinal meningitis	194	Polioencephalitis	2
Chickenpox	4,040	Puerperal fever	1,431
Diarrhea and enteritis	1,352	Purulent ophthalmia	1,670
Diphtheria	4,331	Rabies	77
Dysentery	18,923	Recurrent fever	28
Erysipelas	3,527	Scarlet fever	2,263
Favus	2,854	Smallpox	2,672
German measles	574	Syphilis	32,685
Gonorrhea	26,430	Tetanus	505
Influenza	77,018	Trachoma	52
Leprosy	428	Tuberculosis	11,471
Malaria	128,975	Typhoid fever	9,641
Measles	26,419	Typhus fever	1,350
Mumps	4,399	Uncinariasis	25,846
Onchocerciasis	1,183	Undulant fever	419
Pinta disease	2,104	Whooping cough	33,893
Pneumonia	4,336		

VIRGIN ISLANDS

Notifiable diseases—April–June 1938.—During the months of April, May, and June 1938, cases of certain notifiable diseases were reported in the Virgin Islands as follows:

Disease	April	May	June	Disease	April	May	June
Chickenpox	12	7	3	Pellagra		6	3
Dysentery		3		Pneumonia	1	1	3
Filariasis	4	4	2	Schistosomiasis	1	3	2
Gonorrhea	8	16	4	Syphilis	22	7	18
Hookworm disease	9	22	18	Trachoma	3		
Lymphogranuloma		1		Tuberculosis	2	3	1
Malaria		1		Whooping cough		57	150

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for July 29, 1938, pages 1322-1335. A similar cumulative table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Cholera

China.—During the week ended July 23, 1938, cholera was reported in China as follows: Canton, 5 cases; Hong Kong, 48 cases; Macao, 63 cases; Shanghai, 505 cases; Swatow, 8 cases.

French Indochina.—During the week ended July 23, 1938, cholera was reported in French Indochina as follows: Annam Province, 293 cases; Tonkin Province, 62 cases; Hanoi, 6 cases.

Japan—Okayama Prefecture.—On July 26, 1938, 3 cases of cholera were reported in Okayama Prefecture, Japan.

Plague

United States.—A report of plague infection in San Bernardino County, Calif.; Bear Lake County, Idaho; Rich County, Utah; and in Lincoln and Uinta Counties, Wyoming, appears on page 1436 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Venezuela.—For the period June 1–15, 1938, smallpox was reported in Venezuela as follows: Lara State, 1 death; Portuguesa State, 1 death; Yaracuy State, 2 deaths.

Typhus Fever

Sierra Leone—Freetown.—During the week ended June 4, 1938, 1 case of typhus fever was reported in Freetown, Sierra Leone.